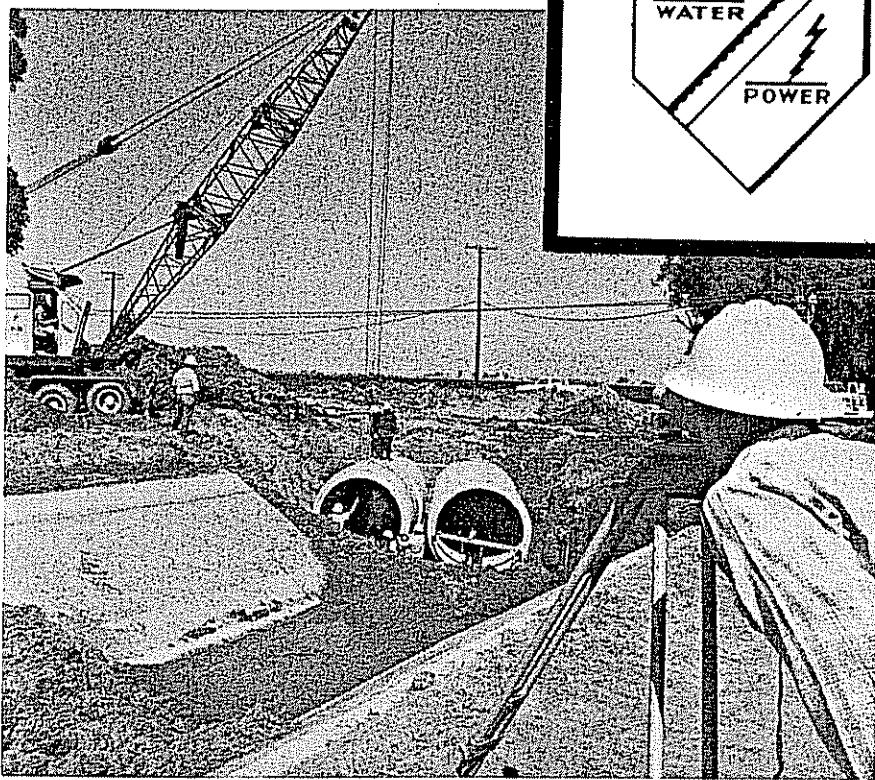
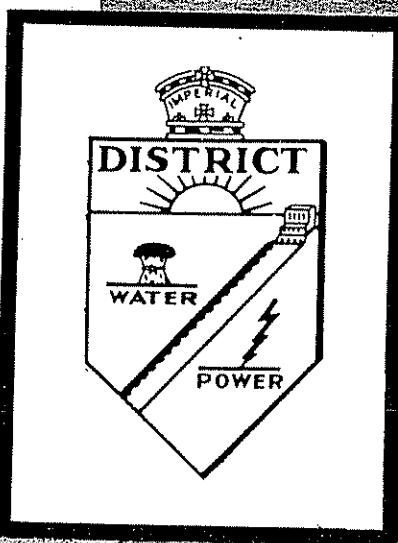
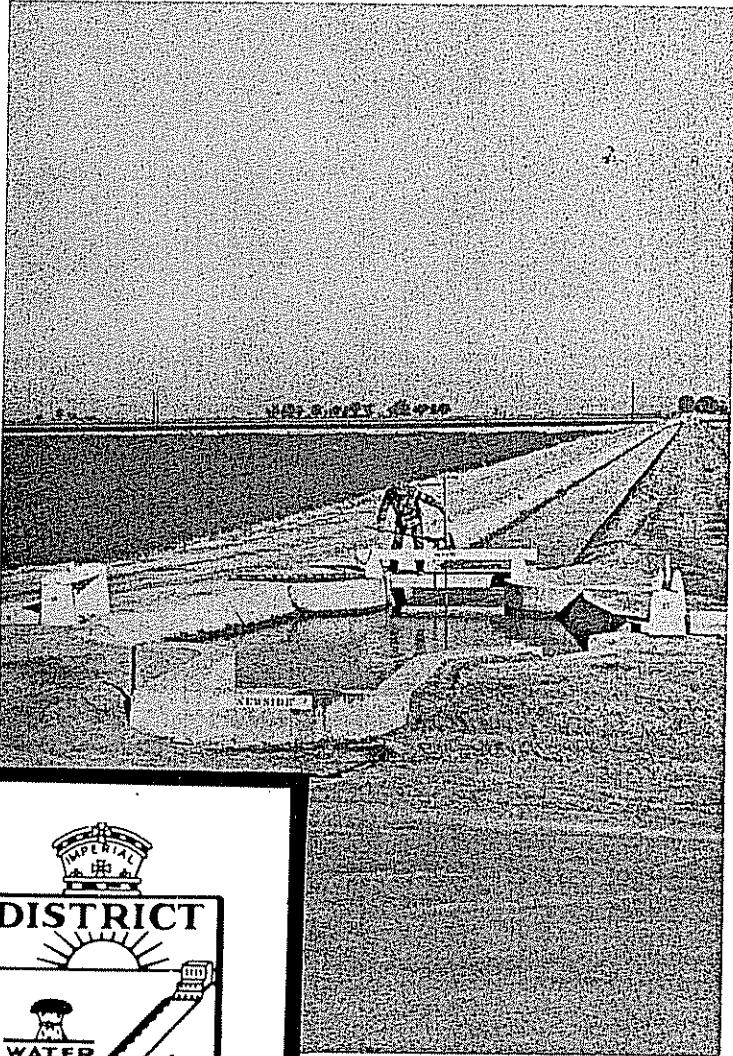


in - a

IMPERIAL IRRIGATION DISTRICT

**1984
WATER
REPORT**



**J. R. WILSON
MANAGER
WATER DEPARTMENT**

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WATER DEPARTMENT
OPERATIONS AND ORGANIZATION

Water is diverted from the Colorado River at Imperial Dam through the District's All-American Canal headworks and desilting basins, thence into the All-American Canal for transporting to Imperial, Yuma and Coachella Valleys. Yuma Project water is diverted from the All-American Canal at Siphon Drop. Coachella Valley Water District water is diverted at Drop No. 1 to the Coachella Branch of the All-American Canal. All water passing below Drop No. 1 in the All-American Canal is for use by Imperial Irrigation District.

The District's gravity-flow canal and drainage systems serve an area of 511,750 acres of irrigated farm land. The total gross area within the District's boundaries is 1,062,290 acres, including undeveloped area; cities, towns, airports, feed lots, etc., area below the -230 contour Salton Sea Reserve Boundary and area covered by Salton Sea; and area in canals, drains, rivers and railroads.

Water Department's responsibilities include operation and maintenance of the All-American Canal headworks and desilting basins at Imperial Dam, 80 miles of All-American Canal, 3 miles of New Briar Canal, a 1,599-mile network of other main canals and laterals, 52 miles of drains in All-American Canal Section and 1,400 miles of main and lateral drains. Due to the concrete lining of the Coachella Branch of the All-American Canal in 1980, the Coachella Valley Water District now operates and maintains this 49-mile section.

Water conveyed in the District's canal system serves agricultural, industrial and domestic purposes. All cities and towns in Imperial Valley receive raw water supplied from District canals.

Department organization includes Irrigation and Drainage Section, All-American Canal Section, Water Control Section, Civil Engineering Section, Drainage Construction and Maintenance Section, Hydrilla Research Project, Water Conservation and Heavy Equipment Operations Section.

Number of Employees in Water Department - December 31, 1984

Water Administration	6
Hydrilla Research Project	3
Water Conservation	4
Water Engineering	22
Water Control.	54
Heavy Equipment Operators Pool	52
Drainage Construction, Maintenance and Design	34
Irrigation and Drainage Section	191
All-American Canal	37
Total	403

Soil Conservation Service District

The local Soil Conservation Service District operates under a memorandum of understanding between the District and the U.S. Department of Agriculture, and a close liaison is maintained between the agencies. Engineering information produced by one agency is available to the other organization.

The Imperial Irrigation District Board of Directors also serves as Directors for the Soil Conservation Service District and sets policy for the Soil Conservation Service Operations in Imperial Valley.

Cars and Trucks Assigned to Water Department Sections, Units & Divisions

Manager, Water Department	1
Assistant Manager, Water Department	1
Hydrilla Research Project	2
Water Conservation	4
Engineering Section	4
Engineering - Boat Trailer	1
Water Control Section	27
Drainage Construction	30
Drainage Construction - Utility Flatbed Trailers	3
Drainage Construction - Material Trailer	2
Equipment Operations	44
Equipment Operations - Flatbed Trailer	1
Equipment Operations - Pull Trailer	1
River Division	13
River Division - Dump Truck	1
River Division - Tiltbed Trailer	1
River Division - Boat Trailer	2
Western Division	10
Western Division - Boat Trailer	1
Western Division - Pump Trailer	1
Western Division - Trailer (Debris removal)	1
Western Division - Flatbed Trailer	1
Western Division - Tiltbed Trailer	1
Superintendent, General, Irrigation & Drainage	1
Holtville Division	24
Holtville Division - Tiltbed Trailer	1
El Centro-Calexico Division	25
El Centro-Calexico Division - Pump Trailer	1
Imperial Division	21
Brawley Division	22
Westmorland Division	23
Westmorland Division - Tiltbed Trailer	1
Calipatria Division	21

Heavy Equipment Assigned to the Water Department

Draglines	8
Motor Cranes	4
38-B Dragline	1
Hydraulic Excavators	5
Hydraulic Excavator - Crawler Mounted	4
Angledozers	12
Motor Graders	3
Backhoes	7
Skiploader	1
Sprinkler Trucks	5
Lube Trucks	2
Wheel Tractors	13
Dump Trucks	8
Boom Trucks	10
Scraper	1

**MAPS OF
IRRIGATION AND DRAINAGE SYSTEMS**

IMPERIAL IRRIGATION DISTRICT

IMPERIAL COUNTY, CALIFORNIA

IRRIGATION SYSTEM

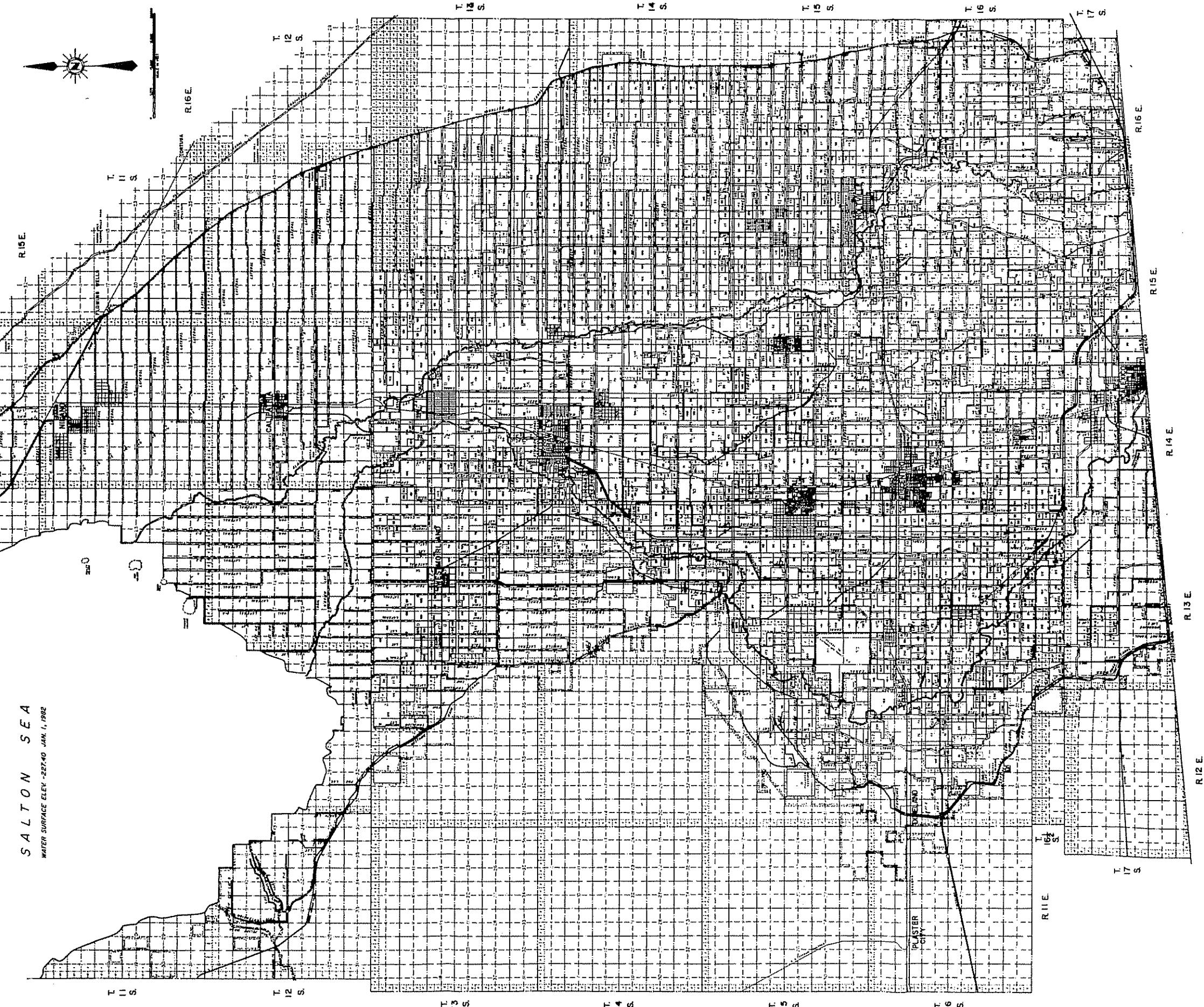
IMPERIAL UNIT

D.A. TWOGOOD
SPRINGMAN

JANUARY, 1982

- LEGEND**
- - - IMPERIAL UNIT BOUNDARY
 - - - TOWNSHIP & RANGE LINES
 - - - SECTION LINES
 - - - TRACT LINES
 - - - LOT LINES
 - - - SECTION NUMBERS
 - - - TRACT NUMBERS
 - - - LOT NUMBERS
- HIGHLIGHTS**
- - - RAILROADS
 - - - RIVERS
 - - - CANALS & STREAMS
 - - - PUMP CANALS
 - - - CONC. LIND. LATERALS
 - - - SPINERS & CHECKS
 - - - BRIDGES
 - - - ASSISTED PUFFED CANALS

SALTON SEA
WATER SURFACE ELEV. -227.40 JAN. 1, 1982



IMPERIAL IRRIGATION DISTRICT

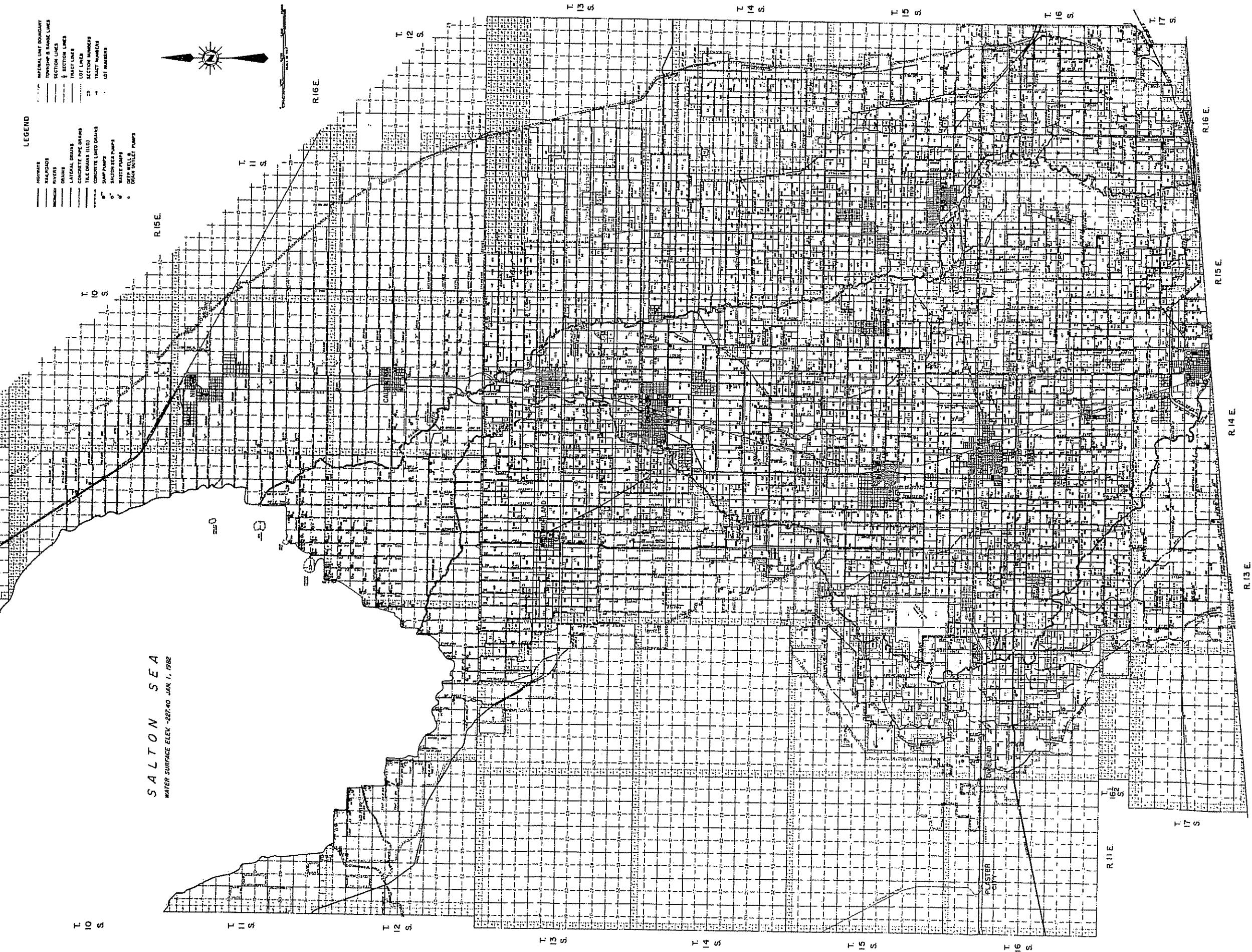
IMPERIAL COUNTY, CALIFORNIA

DRAINAGE SYSTEM

IMPERIAL UNIT

JANUARY, 1982

D. A. TWOGOOD
GENERAL MANAGER



**GROSS ACREAGE, CANAL AND DRAIN MILEAGE
AND INVENTORY OF STRUCTURES**

GROSS ACREAGE OF IMPERIAL IRRIGATION DISTRICT
WITHIN THE A.A.C. SERVICE AREA BOUNDARIES

1. Imperial Unit

Acreage included in Imperial Unit as of 12-31-84	626 614
Included August 10, 1967, (No Water Rights)	63 933
Total Acreage included in Imperial Unit	690 547
Acreage within Imperial Unit not included	3 874
Total Gross Acreage - Imperial Unit	694 421

2. East Mesa Unit

Acreage included in East Mesa Unit as of 12-31-84	201 916
Acreage within East Mesa Unit not included	18 727
Total Gross Acreage - East Mesa Unit	220 643

3. West Mesa Unit

Acreage included in West Mesa Unit as of 12-31-84	67 146
Acreage within West Mesa Unit not included	59 130
Total Gross Acreage - West Mesa Unit	126 276

4. Pilot Knob Unit

Acreage included in Pilot Knob Unit as of 12-31-84	15 478
Acreage within Pilot Knob Unit not included	5 472
Total Gross Acreage - Pilot Knob Unit	20 950
Total	1 062 290
Total Acreage included - All Units	975 087
Total Acreage not included - All Units	87 203
TOTAL GROSS ACREAGE WITHIN A.A.C. SERVICE AREA BOUNDARIES	1 062 290

SALTON SEA AREA

The approximate area covered by that portion of Salton Sea lying within the boundary of the IID on 12-31-84	104 350 acres
The approximate area within the IID boundaries lying above the December 31, 1984, shore line of Salton Sea and below the -230 Salton Sea Reserve Boundary	1 050 acres

CANAL AND DRAIN MILEAGE AS OF DECEMBER 31, 1984

	Total Miles	Miles Earth Section	Miles Concrete Lined	Miles Pipelined
All-American Canal - Canals	82.17	79.57	2.60	0.00
All-American Canal - Drains	51.64	37.51	0.00	14.13
Main Canals	153.46	144.52	8.94	0.00
Lateral Canals	1 445.19	578.25	858.15	8.79
Drains	<u>1 400.44</u>	<u>1 300.08</u>	<u>0.40</u>	<u>99.96</u>
Totals	3 132.90	2 139.93	870.09	122.88

MAIN CANAL MILEAGE AS OF DECEMBER 31, 1984

BY DIVISIONS

<u>Divisions</u>	<u>Total Miles</u>	<u>Miles Earth Section</u>	<u>% Earth Section</u>	<u>Miles Concrete Lined</u>	<u>% Concrete Lined</u>	<u>Miles Pipelined</u>	<u>% Pipelined</u>
Holtville	16.60	16.60	100.00	0	0	0	0
El Centro-Calexico	37.18	32.83	88.30	4.35	11.70	0	0
Imperial	27.00	27.00	100.00	0	0	0	0
Brawley	12.94	12.94	100.00	0	0	0	0
Westmorland	19.20	19.20	100.00	0	0	0	0
Calipatria	<u>40.54</u>	<u>35.95</u>	<u>88.68</u>	<u>4.59</u>	<u>11.32</u>	<u>0</u>	<u>0</u>
Division Totals	153.46	144.52	94.17	8.94	5.83	0	0
All-American Canal	<u>82.17</u>	<u>79.57</u>	<u>96.84</u>	<u>2.60</u>	<u>3.16</u>	<u>0</u>	<u>0</u>
Grand Total	235.63	224.09	95.10	11.54	4.90	0	0

LATERAL CANAL MILEAGE AS OF DECEMBER 31, 1984

BY DIVISIONS

<u>Divisions</u>	<u>Total Miles</u>	<u>Miles Earth Section</u>	<u>% Earth Section</u>	<u>Miles Concrete Lined</u>	<u>% Concrete Lined</u>	<u>Miles Pipelined</u>	<u>% Pipelined</u>
Holtville	291.01	66.37	22.81	224.28	77.07	0.36	.12
El Centro-Calexico	227.65	111.34	48.91	115.81	50.87	0.50	.22
Imperial	199.44	61.75	30.96	136.65	68.52	1.04	.52
Brawley	241.91	107.61	44.48	128.36	53.06	5.94	2.46
Westmorland	196.28	50.28	25.62	146.00	74.38	0.00	.00
Calipatria	<u>288.90</u>	<u>180.90</u>	<u>62.62</u>	<u>107.05</u>	<u>37.05</u>	<u>0.95</u>	<u>.33</u>
Totals	1,445.19	578.25	40.01	858.15	59.38	8.79	.61

DRAIN MILEAGE AS OF DECEMBER 31, 1984
BY DIVISIONS

<u>Divisions</u>	<u>Total Miles</u>	<u>Miles Earth Section</u>	<u>% Earth Section</u>	<u>Miles Concrete Lined</u>	<u>% Concrete Lined</u>	<u>Miles Pipelined</u>	<u>% Pipelined</u>
Holtville	117.33	98.15	83.65	0.40	0.34	18.78	16.01
El Centro-Calexico	79.83	73.07	91.53	0.00	0.00	6.76	8.47
Imperial	70.36	65.12	92.55	0.00	0.00	5.24	7.45
Brawley	219.27	216.24	98.62	0.00	0.00	3.03	1.38
Westmorland	136.12	133.82	98.31	0.00	0.00	2.30	1.69
Calipatria	281.02	<u>261.06</u>	<u>92.90</u>	<u>0.00</u>	<u>0.00</u>	<u>19.96</u>	<u>7.10</u>
Division Totals	903.93	847.46	93.75	0.40	0.04	56.07	6.21
Drainage	496.51	452.62	91.16	0.00	0.00	43.89	8.84
All-American	<u>51.64</u>	<u>37.51</u>	<u>72.64</u>	<u>0.00</u>	<u>0.00</u>	<u>14.13</u>	<u>27.36</u>
Grand Total	1,452.08	1,337.59	92.12	0.40	0.03	114.09	7.85

INVENTORY OF STRUCTURES

December 31, 1984

<u>Main Canals - Divisions</u>	<u>Concrete</u>	<u>Rubble</u>	<u>Wood</u>	<u>Others</u>	<u>Total</u>
Deliveries	193	13	2	-	208
Checks	57	2	-	-	59
Lateral Headings	133	8	-	-	141
Control Structures	97	4	1	-	102
Bridges	5		22	4	31
Siphons	24	1	-	-	25
Moss Pipes	5	-	-	2	7
Storm Spillways	4	4	-	-	8
Flumes	-		-	1	1
Total Divisions	518	32	25	7	582
All-American	<u>145</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>145</u>
Total Main Canals	663	32	25	7	727
<u>Lateral Canals - Divisions</u>					
Deliveries	5 231	127	25	1	5 384
Checks	3 173	163	19	-	3 355
Lateral Headings	326	24	1	-	351
Control Structures	689	48	19	2	758
Bridges	29	4	27	1	61
Siphons	125	2	-	4	131
Moss Pipes	118	-	4	1	123
Flumes	1	-	-	-	1
Storm Spillways	<u>32</u>	<u>4</u>	<u>-</u>	<u>-</u>	<u>36</u>
Total Lateral Canals	9,724	372	95	9	10,200
<u>Drains</u>					
Control Structures	422	9	12	2	445
Bridges	2		33		35
Siphons	1 304	11	5	39	1 359
Flumes	3	-	35	1	39
Outlets	214	-	-	-	214
Spillways	21	-	-	-	21
Maintenance Crossings	351	-	-	-	351
Deliveries - Pump	2	-	-	-	2
Deliveries	4	-	-	-	4
Checks	<u>1</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>1</u>
Total Drains	2,324	20	85	42	2,471

LOCATION OF CONTROL DROPS IN ALAMO AND NEW RIVERS

LOCATION OF CONTROL DROPS IN ALAMO RIVER

Alamo River Drop No. 2, near center N.E. 1/4 Section 12, 12-14, was installed in 1959.

Alamo River Drop No. 3, northwest corner Section 29, 12-14, was installed in 1960.

Alamo River Drop No. 3-A is located immediately east of the existing North End Dam, northwest corner Section 29, 12-14, was installed in 1967.

Alamo River Drop No. 4 is located immediately west of railroad bridge, near east line Tract 170, Section 3, 13-14, and was installed in 1966.

Alamo River Drop No. 5, northwest corner Tract 180, Section 12, 13-14, was installed in 1960.

Alamo River Drop No. 6, southwest corner Section 30, 13-15, was installed in 1961.

Alamo River Drop No. 6-A, southeast corner Tract 155, Section 18, 14-15, was installed in 1974.

Alamo River Drop No. 7, near center Tract 55, Section 30, 14-15, was installed in 1958.

Alamo River Drop No. 8, center E. 1/2, S.W. 1/4, Section 5, 15-15, was installed in 1958.

Alamo River Drop No. 9, S.E. 1/4, N.E. 1/4 Section 20, 15-15, was installed in 1958.

Alamo River Drop No. 10, west line Lot 20, Section 21, 15-15, was installed in 1958.

Alamo River Drop No. 12, Tract 72, Section 26, 15-15, was installed in 1967.

Alamo River Drop No. 13, southwest corner Tract 65, Section 36, 15-15, was installed in 1967.

LOCATION OF CONTROL DROPS IN NEW RIVER

New River Drop No. 2, center Tract 139, Section 9, 13-14, was installed in 1973.

New River Drop No. 3, northwest corner Tract 92, Section 21, 13-14, was installed in 1964.

New River Drop No. 4, near west line Lot 4, Section 32, 13-14, was installed in 1965.

**WATER DISTRIBUTION
AND QUALITY ANALYSIS REPORTS**

IMPERIAL IRRIGATION DISTRICT
ANNUAL SUMMARY
WATER DIVERSION, TRANSPORTATION, DISTRIBUTION, AND DRAINAGE
UNITED STATES AND MEXICO
YEARS OF 1984 AND 1983

WATER DIVERSION

	<u>1984</u>	<u>1983</u>	
<u>COLORADO RIVER:</u>			
<u>Grand Canyon:</u>			
Discharge - Year	20 174 400	18 865 269	A.F.
<u>Hoover Dam:</u>			
Reservoir Elevation - December 31	1207.90	1212.33	Feet
Maximum Reservoir Elevation	1213.71	1225.83	Feet
Available Storage - December 31	24 081 000	24 751 000	A.F.
Maximum Available Storage	24 962 000	26 864 000	A.F.
Loss in Storage - Year	670 000	(600 000)	A.F.
Daily Discharge - Maximum	37 500 (6-25)	50 800 (7-29)	C.F.S.
- Minimum	15 600 (9-2)	3 301 (3-13)	C.F.S.
- Mean	29 495	26 337	C.F.S.
Discharge - Year	21 411 900	19 067 038	A.F.
<u>Davis Dam:</u>			
Storage - December 31	1 506 000	1 659 000	A.F.
Loss in Storage - Year	153 000	13 000	A.F.
Daily Discharge - Maximum	35 900 (6-6)	45 100 (7-2)	C.F.S.
- Minimum	19 300 (10-18)	2 190 (3-5)	C.F.S.
- Mean	29 834	26 764	C.F.S.
Discharge - Year	21 658 200	19 376 554	A.F.
<u>Parker Dam:</u>			
Storage - December 31	581 000	531 700	A.F.
Loss in Storage	(49 300)	9 200	A.F.
Daily Discharge - Maximum	33 200 (7-28)	40 500 (8-15)	C.F.S.
- Minimum	23 100 (1-3)	2 010 (2-7)	C.F.S.
- Mean	28 189	25 137	C.F.S.
Discharge - Year	20 463 900	18 198 381	A.F.
<u>Imperial Dam:</u>			
Diversions - All-American Canal	8 269 112	7 794 381	A.F.
- Gila Main	752 940	695 419	A.F.
Passing Imperial Dam	10 079 700	8 433 643	A.F.
Discharge - Year	19 101 752	16 923 443	A.F.
<u>Yuma - Below Yuma Main Spill:</u>			
Daily Discharge - Maximum	19 200 (7-23)	31 300 (8-20)	C.F.S.
- Minimum	9 030 (4-27)	558 (2-27)	C.F.S.
- Mean	14 617	13 218	C.F.S.
Discharge - Year	10 611 100	9 569 405	A.F.
<u>Morelos Dam:</u>			
Diversions to Alamo Canal	2 615 199	4 790 447	A.F.

WATER TRANSPORTATION

	<u>1984</u>	<u>1983</u>	
<u>All-American Canal:</u>			
*Received at Head	8 269 112	7 794 381	A.F.
*Diversions above Siphon Drop	55 034	50 132	A.F.
*Diversions at Siphon Drop	311 022	286 226	A.F.
<u>Pilot Knob Power Plant:</u>			
*Y.C.W.U.A. Transfer	1 078 590	1 097 751	A.F.
*Imperial Irrigation District	3 598 874	3 351 514	A.F.
*Total Diversion to Power Plant	4 864 744	4 449 382	A.F.
*Diversion to Pilot Knob Spillway	187 280	117	A.F.
<u>Discharge Below Pilot Knob:</u>			
For C.V.W.D.	358 546	355 324	A.F.
For Imperial Irrigation District	2 687 114	2 509 289	A.F.
Total	3 045 660	2 864 613	A.F.
Loss - Imperial Dam to Pilot Knob	(7 348)	144 028	A.F.
<u>Loss - Pilot Knob to Drop No. 1:</u>			
For C.V.W.D.	6 208	13 598	A.F.
For Imperial Irrigation District	39 829	92 404	A.F.
Total	46 037	106 002	A.F.
Diversion to Coachella Canal	352 338	341 726	A.F.
Discharge below Drop No. 1	2 647 285	2 416 885	A.F.
Daily Discharge Below Drop No. 1			
- Maximum	5 803 (4-12)	5 700 (5-19)	C.F.S.
- Minimum	350 (12-30)	300 (2-5&6)	C.F.S.
- Mean	3 647	3 338	C.F.S.
Diversions above E.H.L. Check	1 136 484	1 048 841	A.F.
Discharge below E.H.L. Check	1 478 806	1 340 035	A.F.
Loss - Drop No. 1 to E.H.L. Check	31 995	28 009	A.F.
Divisions E.H.L. to W.S. M. Check	1 450 048	1 311 566	A.F.
Loss - E.H.L. to W.S.M. Check	28 758	28 469	A.F.
Loss - Pilot Knob to W.S.M. Check	100 582	148 882	A.F.

*Daily report from All-American Canal, River Division

WATER DISTRIBUTION

UNITED STATES:

1. Main All-American Canal:

Division	A C R E		F E E T		Deliveries To Users		Canal Loss and Unaccounted For	
	Net Received		Operational Loss				1984	1983
	1984	A	1984	B	1984	C	1984	D
East Mesa	4 346	3 855			4 346	3 855		
Holtville	534 143	511 994	14	26	512 631	488 675	21 498	23 293
Calexico &								
E1 Centro	418 035	400 023			413 783	393 306	4 252	6 717
Imperial	391 255	334 539			374 171	314 756	17 084	19 783
Brawley	398 405	386 347			371 078	356 842	27 327	29 505
Westmorland	371 098	333 257	4 174	2 228	352 481	315 690	14 443	15 339
Calipatria	370 326	316 448			357 838	307 119	12 488	9 329
Total	2 487 608	2 286 463	4 188	2 254	2 386 328	2 180 243	97 092	103 966
% of Net Received	100.00	100.00	0.17	0.10	95.93	95.35	3.90	4.55

2. Main Canal Operational Loss:

		1984	1983	
All-American Canal - Alamo Spillway				A.F.
- New River Spillway		268	413	A.F.
Dahlia Spillway				A.F.
No. 4 Spillway		143	29	A.F.
Dixie Spillway		41		A.F.
Vail Spillway - New River		75	117	A.F.
Vail Supply to Alamo - Above North End Dam		1 035	498	A.F.
Rositas - At Rose Heading			136	A.F.
East Highline at "Z" Spillway		3 471	3 229	A.F.
Total		5 033	4 422	A.F.

3. Operational Loss Recovered:

A. From Main Canals			A.F.
B. From Divisions - Rositas		4 643	4 165
C. From Divisions - Vail		598	1 178

WATER DISTRIBUTION (Cont.)

	<u>Acre-Feet</u>	<u>1984</u>	<u>% Colo. at Imp. Dam</u>	<u>1983</u>	
				<u>Acre-Feet</u>	<u>% Colo. at Imp. Dam</u>
4. Discharge below Pilot Knob (I.I.D.)	2 687 114		14.07	2 509 289	14.83
			<u>% Disch. Below Pilot Knob</u>		<u>% Disch. Below Pilot Knob</u>
5. Net Operational Loss from Divisions (Item 1B minus 3A and 3B)	(1 053)	(0.04)		(3 089)	(0.12)
6. Net Operational Loss from Main Canals (Item 2)	5 033	0.19		4 422	0.17
7. Net Deliveries from Main Canals (Item 1A minus 3A and 3B)	2 482 367	92.38		2 281 120	90.91
8. Total Diversions from Main Canals (Item 6 plus 7)	2 487 400	92.57		2 285 542	91.08
9. Total Canal Loss and Unaccounted for - Main Canals (Item 4 minus 8)	199 714	7.43		223 747	8.92
10. Total Canal Loss and Unaccounted for - Entire System (Item 1D plus 9)	296 806	11.04		327 713	13.06
11. Total Deliveries to Users (Item 1C)	2 386 328	88.81		2 180 243	86.89

() Gain

Note: "Unaccounted for" represents, in part, water delivered through approximately 1,806 service pipes which are unmeasured.

INFLOW TO SALTON SEA

1984 1983

Alamo Channel:

*Crossing Line from Mexico	1 831	1 909	A.F.
Main Canal Operational Loss	1 035	634	A.F.
Division Operational Loss	(5 227)	(5 317)	A.F.
Drainage	566 278	554 745	A.F.
Metered at Outlet	563 917	551 971	A.F.

New River Channel:

*Crossing Line from Mexico	267 904	242 606	A.F.
Main Canal Operational Loss	527	559	A.F.
Division Operational Loss			A.F.
Drainage	243 829	234 268	A.F.
Metered at Outlet	512 260	477 433	A.F.

Direct to Sea:

Main Canal Operational Loss	3 471	3 229	A.F.
Division Operational Loss	4 174	2 228	A.F.
Drainage	80 947	77 489	A.F.
Total	88 592	82 946	A.F.

Summary:

*Crossing Line from Mexico	269 735	244 515	A.F.
Main Canal Operational Loss	5 033	4 422	A.F.
Division Operational Loss	(1 053)	(3 089)	A.F.
Drainage	891 054	866 502	A.F.
Total to Sea	1 164 769	1 112 350	A.F.

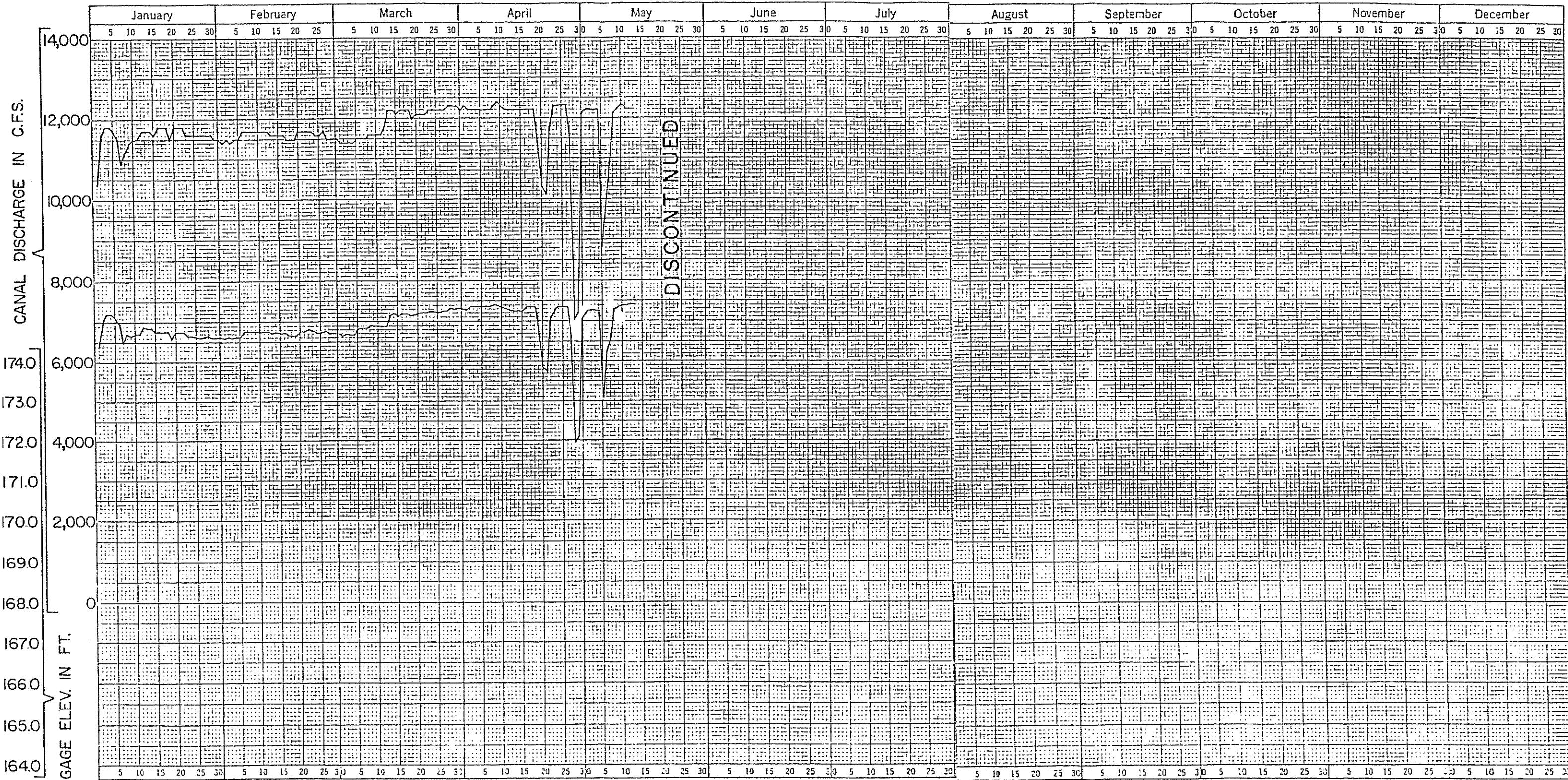
ELEVATION OF THE SALTON SEA:

<u>December 31, 1984</u>	<u>January 2, 1984</u>
-226.70	-226.65

() Gain

*Computed from Meter Stations at the Boundary.

ALL AMERICAN CANAL AT STATION 60 - 1984



TONS OF SEDIMENT REMOVED BY DESILTING BASINS AT IMPERIAL DAM

<u>Year</u>	<u>Sediment</u>	<u>High Month</u>	<u>Total Tons</u>	<u>Low Month</u>	<u>Total Tons</u>
1961	196 553	July	58 635	December	144
1962	337 927	July	81 120	December	338
1963	515 033	July	100 802	December	551
1964	392 573	July	120 565	December	331
1965	433 468	August	143 109	January	439
1966	542 921	July	180 225	January	455
1967	318 777	August	92 033	December	259
1968	459 410	March	130 290	December	481
1969	467 052	April	98 337	December	264
1970	445 798	April	180 957	November	858
1971	441 146	April	122 157	January	1 088
1972	439 086	April	138 713	December	1 351
1973	481 774	April	181 326	February	1 169
1974	626 447	April	201 486	January	1 103
1975	470 161	April	132 456	November	994
1976	556 506	April	199 599	January	1 276
1977	530 026	July	150 466	December	1 651
1978	522 696	July	154 504	January	461
1979	646 766	July	201 383	January	176
1980	3 535 757*	July	1 331 953*	January	1 436
1981	455 671	August	145 520	October	75
1982	39 475	April	100 176	December	75
**1983	1 104 265*	May	389 891	March	1 406
1984	***				

*Caused by extreme high river release

**July-Dec. - Due to high water in Colorado River, the sediment pipes were submerged and no samples were taken.

***Due to continued high river releases during 1984, no samples could be taken

PERCENT OF WATER RECEIVED AT PILOT KNOB CHECK

DELIVERED TO USERS - ACRE-FEET

<u>Year</u>	<u>Acre-Feet Received at Pilot Knob Check</u>	<u>Acre-Feet Delivered to Users</u>	<u>Percent Delivered to Users</u>
1967	2 769 592	2 365 379	85.41
1968	2 864 151	2 475 825	86.44
1969	2 714 487	2 351 578	86.63
1970	2 807 817	2 418 439	86.13
1971	2 938 783	2 534 599	86.25
1972	2 903 491	2 531 343	87.18
1973	3 008 661	2 670 313	88.75
1974	3 133 038	2 777 221	88.64
1975	3 046 890	2 703 706	88.74
1976	2 831 443	2 515 265	88.83
1977	2 717 201	2 454 750	90.34
1978	2 714 988	2 440 701	89.90
1979	2 843 730	2 570 856	90.40
1980	2 817 121	2 519 695	89.44
1981	2 839 495	2 499 761	88.04
1982	2 565 475	2 248 235	87.63
1983	2 509 289	2 180 243	86.89
1984	2 687 114	2 386 328	88.81

IMPERIAL IRRIGATION DISTRICT
ALL-AMERICAN CANAL ANNUAL DISTRIBUTION IN ACRE-FEET

	<u>1984</u>	<u>1983</u>	<u>1982</u>
<u>Station 60 to Drop 1</u>			
<u>Discharge Station 60</u>			
IID	2,682,749	2,562,222	2,605,753
CVWD	358,090	363,685	426,754
Yuma	1,444,361	1,462,376	1,077,568
Pilot Knob (IID Power)	3,783,912	3,406,098	202,193
Total	<u>8,269,112</u>	<u>7,794,381</u>	<u>4,312,268</u>
<u>Diversions Station 60 to 1117</u>			
Bard	55,034	50,132	65,265
Siphon Drop and Walapai	311,022	286,226	440,098
Pilot Knob			
YCWA	1,078,590	1,097,751	553,737
IID (Power)	3,598,874	3,351,514	200,179
Spillway	<u>187,280</u>	<u>117</u>	<u>1,728</u>
Total to River	4,864,744	4,449,382	755,644
<u>Loss Station 60 to 1117</u>			
IID	(4,365)	52,933	40,238
CVWD	(456)	8,361	7,218
Yuma	(285)	28,267	16,780
Pilot Knob (IID Power)	(2,242)	54,467	2,014
Total	<u>(7,348)</u>	<u>144,028</u>	<u>66,250</u>
<u>Discharge Station 1117</u>			
IID	2,687,114	2,509,289	2,565,475
CVWD	358,546	355,324	419,536
Total	<u>3,045,660</u>	<u>2,864,613</u>	<u>2,985,011</u>
<u>Loss Station 1117 to Drop 1</u>			
IID	39,829	92,404	49,838
CVWD	6,208	13,598	9,661
Total	<u>46,037</u>	<u>106,002</u>	<u>59,499</u>

	<u>1984</u>	<u>1983</u>	<u>1982</u>
<u>Drop 1 to Westside Main</u>			
Diversion Coachella Turnout	352,338	341,726	409,875
Discharge below Drop 1	2,647,285	2,416,885	2,515,637
Diversion Drop 1 to EHL Check	1,136,484	1,048,841	1,102,546
Loss Drop 1 to EHL Check	31,995	28,009	19,419
Discharge below EHL Check	1,478,806	1,340,035	1,393,672
Diversions EHL Check to CM Check	808,270	740,586	750,485
Loss EHL Check to CM Check	20,438	17,335	9,080
Discharge below CM Check	650,098	582,114	634,106
Diversion to CM Check to WSM Check	641,778	570,980	625,729
Loss CM Check to WSM Check	8,320	11,134	8,337
<u>Station 60 to Westside Main</u>			
Diversion Station 60 to WSM	8,169,670	7,487,873	4,149,642
Loss Station 60 to WSM	99,442	306,508	162,626

WATER RECOVERY

ANNUAL STATEMENT OF DISTRIBUTION OF WATER
BY DIVISIONS - ACRE-FEET
1984

<u>Division</u>	<u>Received from Main Canals</u>	<u>Percent</u>	<u>Canal Loss and Unaccounted for</u>	<u>Percent</u>	<u>Operational Loss</u>	<u>Percent</u>	<u>Delivered to Users</u>	<u>Percent</u>
Holtville	534,143	100.00	21,498	4.02	14	0.01	512,631	95.97
El Centro-Calexico	418,035	100.00	4,252	1.02	-	-	413,783	98.98
Imperial	391,255	100.00	17,084	4.37	-	-	374,171	95.63
Brawley	398,405	100.00	27,327	6.86	-	-	371,078	93.14
Westmorland	371,098	100.00	14,443	3.89	4,174	1.13	352,481	94.98
Calipatria	<u>370,226</u>	<u>100.00</u>	<u>12,488</u>	<u>3.37</u>	<u>-</u>	<u>-</u>	<u>357,838</u>	<u>96.63</u>
Total Divisions	2,483,262	100.00	97,092	3.91	4,188	0.17	2,381,982	95.92
East Mesa (Experimental Farm)	<u>4,346</u>	<u>100.00</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>4,346</u>	<u>100.00</u>
TOTALS	2,487,608	100.00	97,092	3.90	4,188	0.17	2,386,328	95.93
Duty in Acre-Feet Per Acre							5.34*	

Note: *Water duty based on "Annual Inventory of Acres Receiving Water Service," Item "Net Area Irrigated," minus acres served from Coachella Canal

NUMBER WATER RUNS - ACRE-FEET OF WATER
DELIVERED TO USERS AND WATER SALES

<u>Year</u>	<u>No. Water Runs</u>	<u>Acre-Feet Water Delivered to Users</u>	<u>Water Sales</u>
1961	251 272	2 195 675	4 142 451
1962	253 524	2 223 991	4 455 775
1963	250 522	2 284 666	4 614 879
1964	258 100	2 398 693	4 818 068
1965	255 070	2 311 966	4 637 441
1966	252 920	2 470 268	4 945 585
1967	227 223	2 365 379	5 061 640
1968	239 036	2 475 825	5 678 158
1969	229 034	2 351 578	5 401 789
1970	231 235	2 418 439	5 539 925
1971	241 376	2 534 599	5 798 557
1972	171 375	2 531 343	5 782 168
1973	249 218	2 670 313	6 071 659
1974	250 882	2 777 221	7 393 908
1975	238 821	2 703 706	8 494 593
1976	219 724	2 515 265	9 506 431
1977	217 709	2 454 750	11 228 752
1978	200 013	2 440 701	11 663 741
1979	208 620	2 570 856	13 176 853
1980	202 175	2 519 695	15 256 800
1981	201 334	2 499 761	17 750 415
1982	184 574	2 248 235	17 075 806
1983	177 843	2 180 243	19 735 596
1984	193,696	2,386,328	21,995,877

<u>Town or City</u>	<u>1984 Water Delivered Acre-Feet</u>	<u>1984 Population</u>
Calexico	5,448.0	16,441
Holtville	1,695.4	4,656
El Centro	7,026.4	26,764
Imperial	1,809.0	3,732
Brawley	8,612.0	17,372
Westmorland	726.0	1,776
Calipatria	1,248.8	2,709
Niland	611.8	1,042*
Seeley	345.0	1,058*
Heber	<u>348.0</u>	<u>2,221*</u>
Totals	27,870.4	77,771

Population figures from Imperial Irrigation District's Public Information and Community Services Section, January, 1985. From Imperial County Planning Department.

Source: State Department of Finance/Population Research Unit

*Imperial County 1980 Population Estimates

TOTAL INFLOW TO SALTON SEA

ACRE-FEET

Year	AAC below Drop No. 1	Delivered to Users	Salton Sea from IID*	Inflow to Salton Sea from Mexico		Total Inflow to Salton Sea from IID & Mexico	Inflow to Salton Sea from Coachella	Total Inflow to Salton Sea from California
				101	316			
1970	2 754 898	2 418 439	1 020 503	101	316	1 121 819	<u>1/</u> 129 720	1 251 539
1971	2 883 960	2 534 599	1 092 571	108	791	1 201 362	<u>1/</u> 138 060	1 339 422
1972	2 846 613	2 531 343	1 063 537	112	600	1 176 137	<u>1/</u> 148 020	1 324 157
1973	2 956 013	2 670 313	1 065 414	118	530	1 183 944	<u>1/</u> 156 080	1 340 024
1974	3 072 327	2 777 221	1 123 492	113	066	1 236 558	<u>1/</u> 151 680	1 388 238
1975	3 001 207	2 703 706	1 128 268	101	359	1 229 627	<u>1/</u> 172 400	1 402 027
1976	2 783 630	2 515 265	1 084 993	103	959	1 188 952	<u>1/</u> 189 820	1 378 772
1977	2 693 030	2 454 750	1 020 797	109	132	1 129 929	<u>1/</u> 162 666	1 292 595
1978	2 671 798	2 440 701	995 674	99	704	1 095 378	<u>1/</u> 149 788	1 245 166
1979	2 803 166	2 570 856	1 056 652	146	321	1 202 973	<u>1/</u> 161 070	1 364 043
1980	2 769 495	2 519 695	1 043 241	157	975	1 201 216	<u>1/</u> 192 400	1 393 616
1981	2 769 112	2 499 761	962 925	157	717	1 120 642	<u>1/</u> 256 660	1 377 302
1982	2 515 637	2 248 235	888 575	159	099	1 047 674	<u>2/</u> 152 282	1 199 956
1983	2 416 885	2 180 243	867 835	244	515	1 112 350	<u>2/</u> 150 956	1 263 306
1984	2 647 285	2 386 328	895 034	269	735	1 164 769	<u>2/</u> 140 985	1 305 754

*Includes storm runoff

1/ Revised to conform to USGS Water Resources Data of California
2/ Preliminary data from CVWD

ALL-AMERICAN CANAL BELOW DROP NO. 1 AND ANNUAL INFLOW TO SALTON SEA
IN ACRE-FEET

YEAR	ALL-AMERICAN CANAL BELOW DROP NO. 1	INFLOW TO SALTON SEA						TOTAL TO SALTON SEA
		I.I.D. PORTION	DROP NO. 1	% OF MEXICO	FROM TO MEXICO	% OF TOTAL	TO SALTON SEA	
1952	3,203,411	1,260,573	39.35	37,167	2.86	1,297,740		
1953	3,353,244	1,345,998	40.14	32,424	2.35	1,378,422		
1954	3,095,783	1,273,210	41.13	30,936	2.37	1,304,146		
1955	2,927,165	1,069,809	36.55	48,900	4.37	1,118,709		
1956	2,906,746	1,091,804	37.56	78,174	6.68	1,169,978		
1957	2,781,792	1,011,379	36.36	72,607	6.70	1,083,986		
1958	2,730,876	974,045	35.67	105,974	9.81	1,080,019		
1959	2,840,173	1,020,963	35.95	123,643	10.80	1,144,606		
1960	2,983,860	1,059,804	35.52	123,233	10.42	1,183,037		
1961	2,957,200	1,050,700	35.53	116,826	10.01	1,167,526		
1962	2,951,266	1,088,965	36.90	133,884	10.95	1,222,849		
1963	2,991,429	1,153,827	38.57	141,064	10.89	1,294,891		
1964	2,770,474	905,153	32.67	106,921	10.56	1,012,074		
1965	2,624,363	882,962	33.64	113,137	11.36	996,099		
1966	2,817,912	1,004,685	35.65	104,503	9.42	1,109,188		
1967	2,719,861	1,027,970	37.79	98,455	8.74	1,126,425		
1968	2,806,124	1,001,027	35.67	107,488	9.70	1,108,515		
1969	2,675,833	962,639	35.98	104,907	9.83	1,067,546		
1970	2,754,898	1,020,503	37.04	101,316	9.03	1,121,819		
1971	2,883,960	1,092,571	37.88	108,791	9.06	1,201,362		
1972	2,846,613	1,063,537	37.36	112,600	9.57	1,176,137		
1973	2,956,013	1,065,414	36.04	118,530	10.01	1,183,944		
1974	3,072,327	1,123,492	36.57	113,066	9.14	1,236,558		
1975	3,001,207	1,128,268	37.59	101,359	8.24	1,229,627		
1976	2,783,630	1,084,993	38.98	103,959	8.74	1,188,952		
1977	2,693,030	1,020,797	37.91	109,132	9.66	1,129,929		
1978	2,671,798	995,674	37.27	99,704	9.10	1,095,378		
1979	2,803,166	1,056,652	37.70	146,321	12.16	1,202,973		
1980	2,769,495	1,043,241	37.67	157,975	13.15	1,201,216		
1981	2,769,112	962,925	34.77	157,717	14.07	1,120,642		
1982	2,515,637	888,575	35.32	159,099	15.19	1,047,674		
1983	2,416,885	867,835	35.91	244,515	21.98	1,112,350		
1984	2,647,285	895,034	33.81	269,735	23.16	1,164,769		

INFLOW TO SALTON SEA - I.I.D. PORTION

	Percent of Drop No. 1														
	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
January	45.5	49.0	50.1	48.0	60.6	49.9	46.9	49.0	85.9	79.6	56.7	56.1	41.4	38.2	38.4
February	44.3	44.7	46.3	51.5	39.1	43.5	55.8	37.9	38.0	43.9	70.9	38.1	37.1	56.0	34.2
March	40.4	40.7	36.1	37.1	39.3	38.5	36.5	34.3	36.9	38.2	38.0	38.4	37.4	46.4	32.3
April	36.0	34.6	33.9	34.4	33.6	37.8	38.3	34.0	35.2	34.9	36.6	34.4	31.7	33.4	31.8
May	33.8	34.9	32.5	33.7	33.7	35.2	36.2	34.4	35.1	36.3	36.9	34.1	33.5	30.6	30.9
June	31.0	31.7	30.6	30.8	31.4	33.9	30.7	29.6	29.2	29.6	31.0	27.9	29.2	27.9	26.3
July	36.2	29.4	28.0	27.0	29.8	30.4	28.7	26.8	28.3	30.4	28.9	26.6	25.7	24.4	30.3
August	30.4	34.1	29.1	28.5	29.8	29.9	27.5	60.9	29.9	33.2	30.7	30.2	27.7	33.2	28.4
September	34.3	38.7	36.1	33.0	36.5	38.5	58.7	36.3	36.1	35.8	34.5	33.0	35.2	35.7	33.6
October	40.8	44.5	57.8	40.0	43.1	42.1	44.4	43.1	48.1	42.5	40.7	37.1	35.8	38.5	39.7
November	47.6	45.8	51.6	45.1	48.5	46.9	57.1	45.6	51.4	47.7	48.9	46.5	47.4	44.6	47.9
December	47.1	47.8	46.9	59.2	51.3	49.5	49.0	52.1	65.4	48.7	47.1	46.4	101.7	51.2	69.9
Yearly Average	37.3	38.6	37.7	36.7	37.0	38.4	39.3	38.1	37.5	37.9	37.9	35.2	35.6	36.2	34.0

SALINITY OF WATER BELOW DROP 1 ON ALL-AMERICAN CANAL

<u>Year</u>	<u>*Aver. t.a.f.</u>	<u>Total Tons (Millions)</u>	<u>Year</u>	<u>*Aver. t.a.f.</u>	<u>Total Tons (Millions)</u>
1954	1.01	3.1	1970	1.27	3.5
1955	1.17	3.4	1971	1.27	3.7
1956	1.27	3.7	1972	1.24	3.5
1957	1.22	3.4	1973	1.18	3.5
1958	1.00	2.7	1974	1.19	3.7
1959	1.00	2.9	1975	1.19	3.6
1960	1.06	3.2	1976	1.17	3.3
1961	1.13	3.3	1977	1.13	3.0
1962	1.15	3.4	1978	1.08	2.9
1963	1.13	3.4	1979	1.15	3.2
1964	1.19	3.3	1980	1.10	3.1
1965	1.30	3.4	1981	1.15	3.2
1966	1.30	3.7	1982	1.16	2.9
1967	1.22	3.3	1983	1.05	2.5
1968	1.21	3.4	1984	1.00	2.7
1969	1.00	2.7			

*Weighted Average, Salt Concentrations

SUMMARY OF SALT BALANCE
EXCLUDING WATER AND SALT FROM MEXICO

Year	INFLUENT 1/			EFFLUENT			Tons Salt		
	Total Discharge AF	Tons of Salt Brought Into the Area	Average 2/ T.A.F. p.p.m.	Total Discharge AF	Tons of Salt Removed	Average 2/ T.A.F. p.p.m.	Diff.	Percent Loss or Gain	
1958	2 730 876	2 723 153	1.00 735	974 045	3 341 376	3.43 2521	618 223	22.70 gain	
1959	2 840 173	2 852 019	1.00 735	1 020 963	3 401 652	3.33 2448	549 633	19.27 gain	
1960	2 983 860	3 162 485	1.06 779	1 059 804	3 558 534	3.36 2470	396 049	12.52 gain	
1961	2 957 200	3 330 087	1.13 831	1 050 700	3 572 808	3.40 2499	242 721	7.29 gain	
1962	2 951 266	3 399 464	1.15 845	1 088 965	3 806 946	3.50 2573	407 482	11.99 gain	
1963	2 991 429	3 378 583	1.13 831	1 153 827	4 050 087	3.51 2580	671 504	19.88 gain	
1964	2 770 474	3 284 284	1.19 875	905 153	3 635 121	4.02 2955	350 837	10.68 gain	
1965	2 624 363	3 406 457	1.30 955	882 962	3 819 255	4.33 3183	412 798	12.12 gain	
1966	2 817 912	3 650 447	1.30 955	1 004 685	4 148 874	4.13 3036	498 427	13.65 gain	
1967	2 719 861	3 306 261	1.22 897	1 027 970	4 139 477	4.03 2962	833 216	25.20 gain	
1968	2 806 124	3 408 548	1.21 889	1 001 027	4 012 009	4.01 2947	603 461	17.70 gain	
1969	2 675 833	3 396 105	1.27 933	962 639	3 754 477	3.90 2867	358 372	10.55 gain	
1970	2 754 898	3 488 023	1.27 933	1 020 503	3 780 732	3.70 2719	292 709	8.39 gain	
1971	2 883 969	3 666 277	1.27 933	1 092 571	3 900 990	3.57 2624	234 713	6.40 gain	
1972	2 846 613	3 541 248	1.24 911	1 063 537	3 886 592	3.65 2683	345 344	9.75 gain	
1973*	2 956 013	3 492 199	1.18 867	1 065 414	3 980 338	3.74 2749	488 139	13.98 gain	
1974*	3 072 327	3 669 832	1.19 875	1 123 492	4 204 158	3.74 2749	534 326	14.56 gain	
1975*	3 001 207	3 581 043	1.19 875	1 128 268	4 196 407	3.72 2734	615 364	17.18 gain	
1976*	2 783 630	3 263 454	1.17 860	1 084 993	4 361 658	4.02 2955	1 098 204	33.68 gain	
1977*	2 693 030	3 039 155	1.13 831	1 020 797	4 187 227	4.10 3014	1 148 072	37.78 gain	
1978*	2 671 798	2 897 906	1.08 797	995 674	3 824 323	3.84 2823	926 417	31.97 gain	
1979*	2 803 166	3 216 228	1.15 843	1 056 652	3 998 131	3.78 2781	781 903	24.31 gain	
1980*	2 769 495	3 058 785	1.10 812	1 043 241	3 988 611	3.82 2810	929 826	30.40 gain	
1981*	2 769 112	3 192 402	1.15 847	962 925	3 825 050	3.97 2920	632 648	19.82 gain	
1982*	2 515 637	2 918 781	1.16 853	888 575	3 608 490	4.06 2985	689 709	23.63 gain	
1983*	2 416 885	2 538 349	1.05 772	867 835	3 333 260	3.84 2822	794 911	31.32 gain	
1984*	2 647 285	2 654 712	1.00 737	895 034	3 360 256	3.75 2759	705 544	26.58 gain	

Note: Part of the water in Alamo River from Mexico was used for irrigation in U.S. prior to January 4, 1958.
1/ Based on weekly samples at All-American Canal Station 2963 (East Highline Check) 1958 through 1972

2/ p.p.m. = 735 x T.A.F.

Prior to January 1, 1970, all salt concentrations were obtained by evaporation and drying at 105° C.
Subsequent to January 1, 1970, concentrations were obtained by drying at 180° C.

*Based on weekly samples at All-American Canal below Drop 1

SALINITY - SALTON SEA

Year	Total Dissolved*		Total Dissolved*		Year	Total Dissolved*	
	Solids p.p.m.	t.a.f.	Solids t.a.f.	p.p.m.		Solids p.p.m.	t.a.f.
1959	35	749	48.62	1972	39	013	53.06
1960	35	366	48.10	1973	39	186	53.29
1961	35	303	48.01	1974	39	183	53.29
1962	35	122	47.77	1975	38	973	53.00
1963	35	998	48.96	1976	38	528	52.40
1964	36	727	49.95	1977	38	461	52.31
1965	36	835	50.10	1978	38	141	51.87
1966	36	339	49.42	1979	38	423	52.26
1967	38	120	51.84	1980	37	616	51.16
1968	38	540	52.41	1981	38	451	52.29
1969	40	009	54.41	1982	39	897	54.26
1970	38	583	52.47	1983	39	479	53.69
1971	39	150	53.24	1984	40	335	54.86

* Average of total parts per million of samples taken at Bertram Station, Desert Ranch, Sandy Beach, and Salton Sea Beach for each respective year.

** p.p.m. x .00136 = T.A.F.

Note: Sample taken between the Alamo and New Rivers has been excluded due to possible influence of fresh water from rivers on salinity determination of the Sea.

All samples are surface samples taken in May and November of each year.

Parts per million were determined by evaporation, dried at 105°C prior to January 1, 1970, and dried at 180°C subsequent to January 1, 1970.

COMPETE ANALYSES SALTON SEA
(Surface Samples)

1984

Date of Sample	Sandy Beach				Desert Beach				Salton Sea Beach				Bertram Station				Between Alamo & New River Outlets				
	5-7-84		11-15-84		5-7-84		11-15-84		5-7-84		11-15-84		5-7-84		11-15-84		5-7-84		11-15-84		
CATIONS	ppm	1,095	1,149	ppm	1,082	1,109	ppm	1,069	1,096	ppm	1,162	1,176	ppm	1,029	1,069	ppm	51.33	55.33	ppm	51.33	55.33
Ca	ppm	54.67	57.33	ppm	54.00	55.33	ppm	53.33	54.67	ppm	58.00	58.67	ppm	1,029	1,069	ppm	51.33	55.33	ppm	51.33	55.33
Mg	ppm	1,273	1,265	ppm	1,04.00	1,03.33	ppm	1,257	1,04.67	ppm	1,204	1,159	ppm	1,175	1,119	ppm	1,119	1,159	ppm	92.00	95.33
Na + K	ppm	8,434	7,697	ppm	409.04	334.70	ppm	9,485	412.46	ppm	7,725	9,559	ppm	7,879	9,571	ppm	7,858	8,815	ppm	8,007	8,46.17
ANIONS	ppm	188	188	ppm	3.08	3.12	ppm	190	190	ppm	188	193	ppm	190	190	ppm	205	205	ppm	205	205
HCO ₃ + CO ₃	ppm	3.08	1	ppm	1	1	ppm	3.12	1	ppm	3.08	1	ppm	3.16	1	ppm	3.36	3.36	ppm	3.36	3.36
Cl	ppm	14,298	14,498	ppm	403.26	403.26	ppm	14,298	14,498	ppm	14,298	14,498	ppm	14,298	14,498	ppm	14,298	14,498	ppm	14,298	14,498
SO ₄	ppm	7,783	4,037	ppm	162.04	84.05	ppm	7,849	4,126	ppm	7,779	4,050	ppm	7,833	4,082	ppm	7,796	4,066	ppm	7,796	4,066
Total	ppm	1,136.76	992.06	ppm	54.01	55.95	ppm	1,139.58	995.86	ppm	1,136.62	992.60	ppm	1,139.02	994.04	ppm	1,137.86	993.66	ppm	1,137.86	993.66
T.D.S.*	ppm t.a.f.	39.712	41.140	ppm	53.67	53.67	ppm	39.460	40.880	ppm	39,800	41,036	ppm	40,360	40,296	ppm	37,996	38,652	ppm	37,996	38,652
K x 10 ⁶ at 25°C	51,575	50,520	51,575	8.8	8.8	8.8	50,520	51,575	8.8	50,520	51,575	8.8	50,520	51,575	8.8	50,520	51,575	8.8	50,520	51,575	
ph																					

*By evaporation

**Imperial Irrigation District
Salton Sea
Summary of Observations at Evaporation Stations**

Sandy Beach										Devil's Hole										Salt Farm																		
Mean Temp.					Rain Total Wind Miles					Meas. Pan Evap. Inches					Meas. Pan Evap. Inches					Rain Total Wind Miles					Meas. Pan Evap. Inches													
Max.	Avg.	Temp.	Min.	Max.	Total	Rain	Total	Wind	Miles	Max.	Mean	Temp.	Min.	Max.	Max.	Mean	Temp.	Min.	Max.	Max.	Mean	Temp.	Min.	Max.	Max.	Mean	Temp.	Min.	Max.									
69.3	44.7	57.0	1425.6	0.00	3.30	71.0	45.8	58.4	1670.3	0.08	3.10	72.0	44.1	58.1	1942.7	0.00	3.61	3.34	3.34	86.2	61.6	73.9	2324.8	7.75	85.6	58.3	71.9	1554.0	6.34	86.9	59.0	72.9						
72.4	47.5	60.0	1551.0	0.00	3.99	71.9	42.1	57.0	1555.7	0.00	3.54	74.3	43.0	58.7	1734.0	0.00	4.35	4.35	4.35	80.6	52.6	66.6	2744.0	0.00	7.49	81.0	49.7	65.4	2092.3	0.00	6.10	48.9	65.1	2588.9	0.00	6.46	6.46	6.46
85.2	57.5	71.4	3372.7	0.00	9.75	84.2	54.1	69.2	2430.3	0.00	8.26	84.2	53.5	68.9	3090.1	0.00	8.31	8.77	8.77	98.2	83.2	85.4	2629.2	0.00	10.51	96.9	63.7	80.3	1679.7	1.00	8.59	100.3	65.7	83.0	2251.4	0.00	10.66	9.92
99.9	71.8	85.4	3080.1	0.00	12.18	97.7	68.2	83.0	1752.7	0.00	9.11	100.7	70.7	85.7	2530.7	0.00	10.49	10.59	10.59	102.2	80.9	91.6	2545.0	0.77	9.84	103.1	79.1	91.1	1795.0	0.17	8.68	104.2	80.4	92.3	2471.7	1.09	9.85	9.46
85.4	62.1	73.8	2664.0	0.00	8.67	86.3	56.6	71.5	1333.1	0.00	6.65	84.5	58.3	71.4	2703.5	0.00	9.24	9.18	9.18	102.5	82.1	92.3	2403.0	0.50	10.00	102.5	78.0	90.3	1463.4	0.03	8.29	103.4	79.5	91.5	2384.5	0.00	9.24	9.18
76.3	50.6	63.5	1947.4	0.70	4.81	66.6	45.6	56.1	848.0	0.56	3.62	74.1	44.6	59.4	1749.7	0.49	3.62	4.02	4.02	63.7	45.4	54.6	1507.4	1.33	2.47	64.1	42.8	53.5	910.6	1.29	2.38	62.4	42.6	52.5	1432.9	1.06	1.72	2.19
134.7	739.3	887.0	27897.4	3.30	93.01	1026.8	699.4	863.1	18647.4	2.13	76.02	1042.7	707.6	875.2	27099.3	2.64	84.75	84.59	84.59	86.2	61.6	73.9	2324.8	7.75	85.6	58.3	71.9	1554.0	6.34	86.9	59.0	72.9	2258.3	7.05	7.05	7.05		

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Evaporation measured from 2-foot diameter \times 3-foot deep buried screen pan = 1/4-inch screen

NET INFLOW TO SALTON SEA

1984

Date	Measured Pan Evaporation		Sea Evaporation	IID Inflow to Sea	Total Inflow to Sea	Difference Inflow-Evap.
	(1)	(2)	(3)	(4)	(5)	(6)
	Inches	Feet	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet
Jan.	3.34	0.28	44 408	79 757	84 622	+ 40 214
Feb.	3.96	0.33	52 338	90 692	96 224	+ 43 886
March	6.68	0.56	88 816	112 218	119 063	+ 30 247
April	8.77	0.73	115 778	124 674	132 279	+ 16 501
May	9.92	0.83	131 638	111 702	118 516	- 13 122
June	10.59	0.88	139 568	86 587	91 869	- 47 699
July	9.46	0.79	125 294	96 861	102 770	- 22 524
Aug.	9.18	0.76	120 536	97 797	103 763	- 16 773
Sept.	8.91	0.74	117 364	97 045	102 965	- 14 399
Oct.	7.57	0.63	99 918	106 340	112 827	+ 12 909
Nov.	4.02	0.33	52 338	88 267	93 651	+ 41 313
Dec.	2.19	0.18	28 548	72 829	77 272	+ 48 724
TOTAL	84.59	7.04	1 116 544	1 164 769	1 235 820	+ 119 276

(3) = (2) x 0.65 (pan factor) x 244,000 Ac. (Sea surface area)

(5) = (4) x 1.061 (estimated factor to include Coachella Area inflow to Sea)

Note: Pan evaporation in feet was carried to 4 decimal places in calculating sea evaporation (Column 3)
Acre-feet rounded to the nearest 100

SALTON SEA EVAPORATION

Screened Evaporation Pans

(Averages for 3 Weather Stations)

Reported Actual Evaporation in Feet^{1/}

	<u>25-Yr. Avg.</u> <u>1958-1982</u>	<u>1983</u>	<u>1984</u>	<u>1984 Difference</u>	
				<u>From Avg.</u>	<u>From 1983</u>
January	0.29	0.28	0.28	- 0.01	0.00
February	0.36	0.20	0.33	- 0.03	0.13
March	0.58	0.47	0.56	- 0.02	0.09
April	0.79	0.67	0.73	- 0.06	0.06
May	0.99	0.84	0.83	- 0.16	- 0.01
June	1.07	0.91	0.88	- 0.19	- 0.03
July	1.10	1.00	0.79	- 0.31	- 0.21
August	1.06	0.67	0.76	- 0.30	0.09
September	0.88	0.62	0.74	- 0.14	0.12
October	0.66	0.52	0.63	- 0.03	0.11
November	0.42	0.42	0.33	- 0.09	- 0.09
December	0.31	0.25	0.18	- 0.13	- 0.07
TOTAL	8.51	6.85	7.04	- 1.47	0.19

1/ Observed pan evaporation plus rainfall

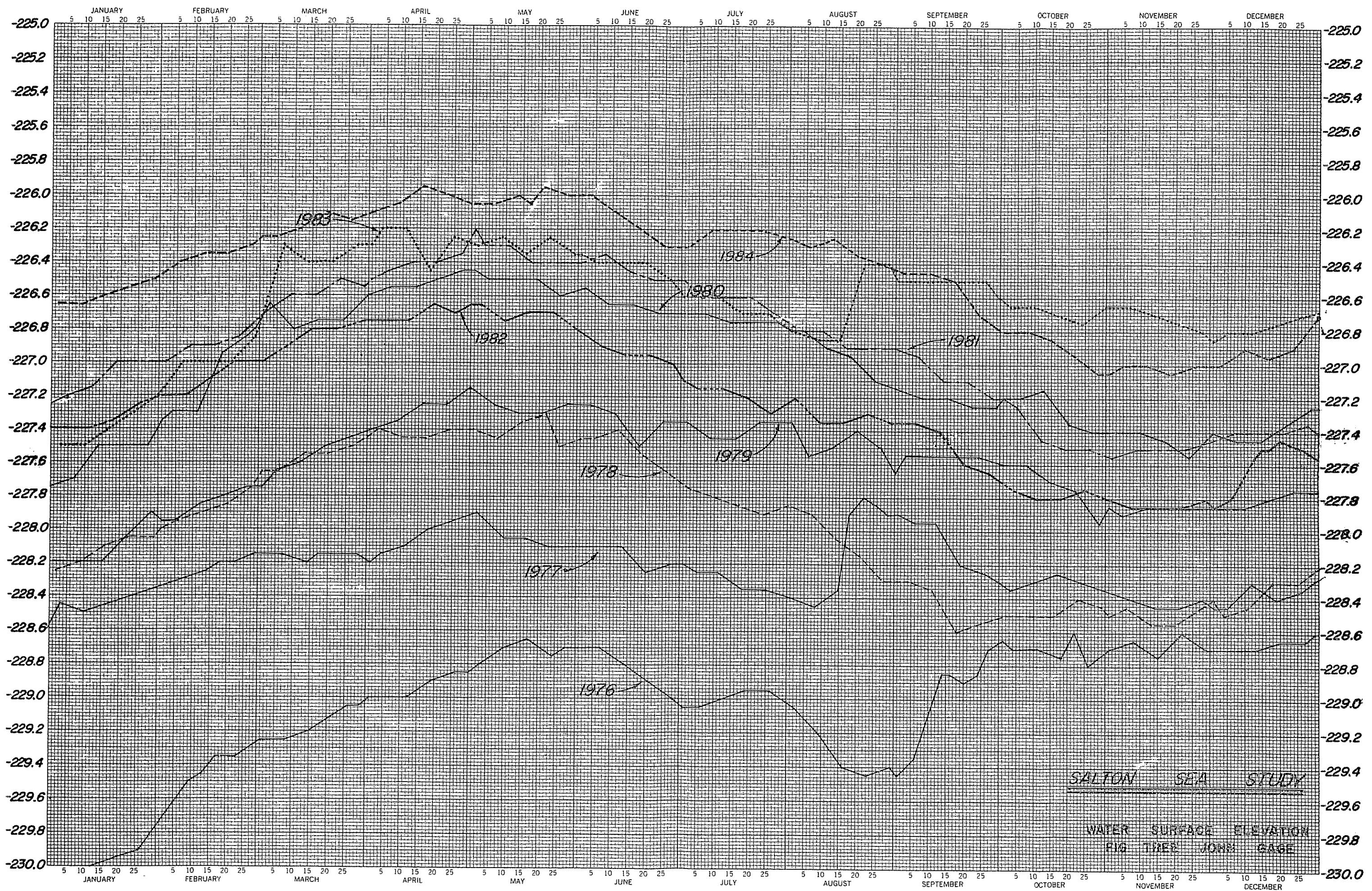
ELEVATION OF SALTON SEA IN FEET BELOW SEA LEVEL

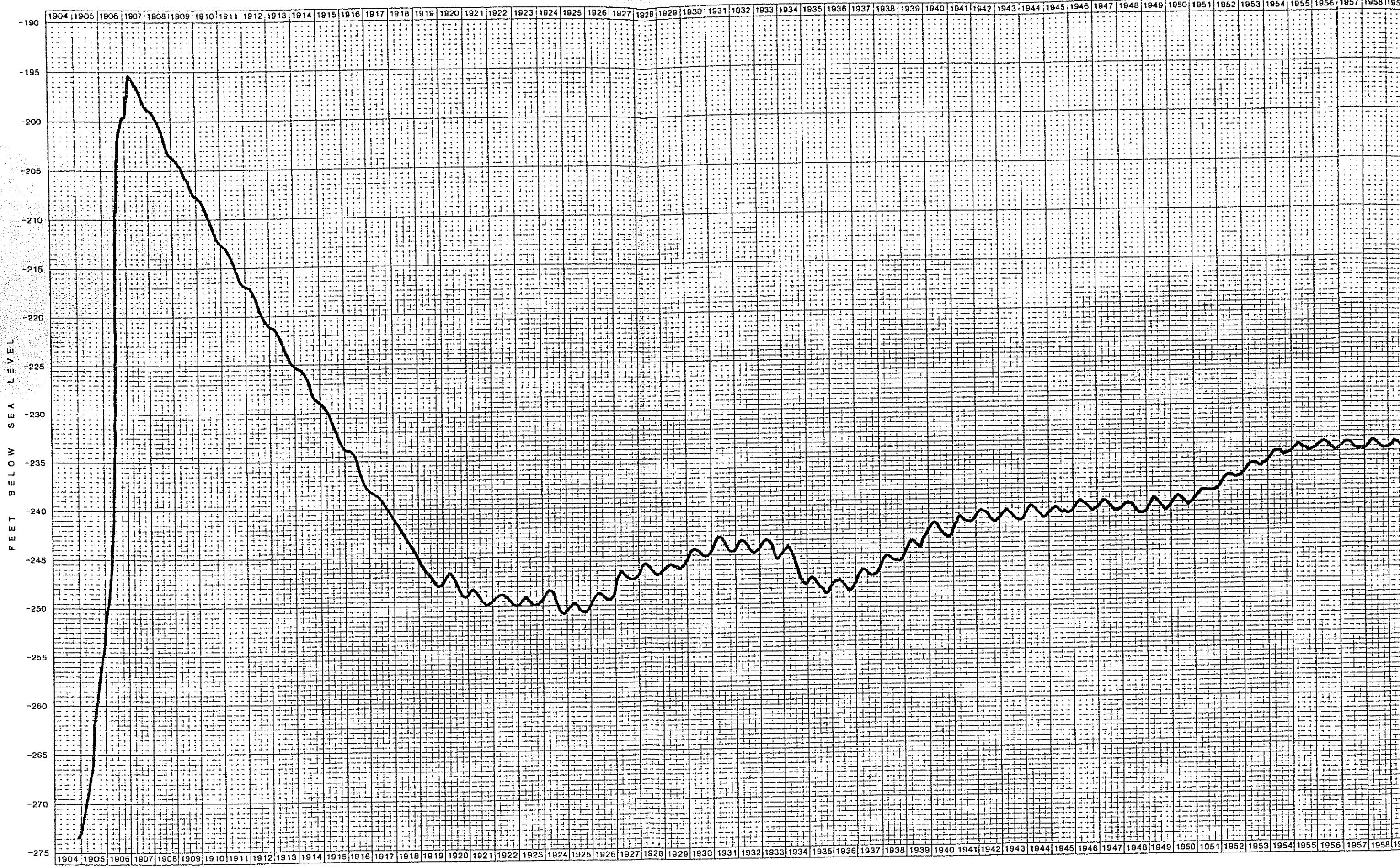
(Near Fig Tree John Spring, Section 23, T. 8 S., R. 9 E.)

<u>Year</u>	<u>Elevation End of Year</u>	<u>Year</u>	<u>Elevation End of Year</u>
1933	244.60	1959	234.30
1934	247.80	1960	233.75
1935	248.30	1961	233.35
1936	247.70	1962	232.65
1937	246.40	1963	231.20
1938	244.70	1964	231.85
1939	242.20	1965	232.00
1940	242.50	1966	231.95
1941	241.00	1967	231.75
1942	241.30	1968	231.80
1943	241.05	1969	231.95
1944	240.80	1970	231.90
1945	240.35	1971	231.65
1946	240.45	1972	231.30
1947	240.45	1973	231.15
1948	240.75	1974	230.65
1949	240.20	1975	230.05
1950	239.60	1976	228.60
1951	238.30	1977	228.25
1952	236.60	1978	228.20
1953	235.75	1979	227.75
1954	234.75	1980	227.25
1955	234.35	1981	227.40
1956	234.50	1982	227.85
1957	234.45	1983	226.65
1958	234.60	1984	227.00

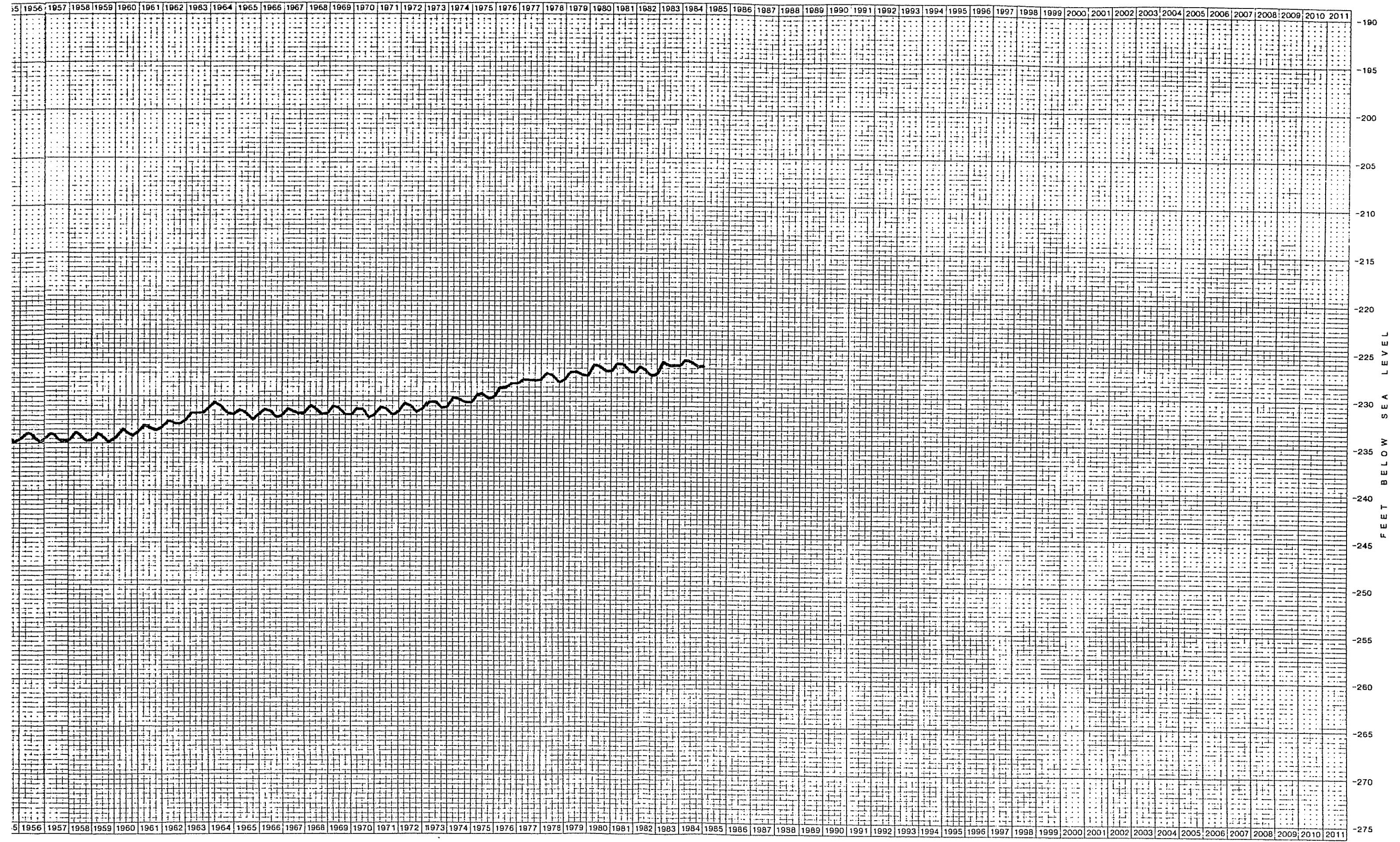
**1984 SUMMARY OF STRUCTURES INSTALLED, REPLACED,
NEW CONSTRUCTION AND ITEMS OF INTEREST CONCERNING
OPERATION AND MAINTENANCE**

K E 1 YEAR BY DAYS x 250 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.





WATER SURFACE ELEVATION



SUMMARY OF STRUCTURES INSTALLED OR REPLACED

	<u>1984</u>	<u>1983</u>
Tile Sumps Installed (Total in system - 506)	2	1
Surface Drain Sumps Installed (Total in system - 23)	1	-
*County Road crossings installed	42	20
Railroad crossings installed	-	-
State Highway crossings installed	-	-
New deliveries installed	12	9
New checks installed	4	1
New siphons installed	1	1
New control structures installed	14	3
New storm spillways installed	-	-
New maintenance crossings installed	1	-
New headings installed	-	-
New bridges installed	-	-
New moss pipes installed	-	-
New outlets installed	-	-
New headwalls installed	-	-
New waste pipes installed	3	4
Deliveries replaced	23	12
Checks replaced	13	5
Bridges replaced	-	-
Siphons replaced	4	5
Control structures replaced	5	10
Moss pipes replaced	-	-
Spillways replaced	-	-
Waste pipes replaced	6	1
 Miles of open drains replaced with pipeline and pipeline drains installed	 .79	 .79
 Miles of canals concrete lined	 43.49	 23.08

*The County Board of Supervisors and the District Board of Directors entered into a cooperative agreement in 1947, for replacement of canal or drain crossings under County roads with concrete siphons. Under the terms of this agreement the District pays installation costs and the County of Imperial pays material costs.

ALL-AMERICAN CANAL

The above-average upstream releases from extreme runoff caused heavy flows of the Colorado River resulting in heavy trash and silt loads at the All-American Canal Headworks. This created a tremendous increase in District labor and expenses due to crews working around the clock to keep the trash racks clear and desilting basins open to maintain discharge into the All-American Canal. These river flows caused drainage problems in Bard Valley.

WATER CONSERVATION

The J.M. Sheldon Water Conservation Reservoir is a 476-acre-foot regulating reservoir, constructed on a 50-acre site in portion of Tracts 214 and 308, 14-13, on the Westside Main Canal. This reservoir receives water from the Westside Main Canal that would normally be surplus and stores it for beneficial use below No. 8 Heading when required. This reservoir was constructed and put into operation in 1977. A total of 24,221 acre-feet was diverted to the reservoir and 23,845 acre-feet was released in 1984.

The Kakoo Singh Reservoir, a 323-acre-foot regulating reservoir, constructed on a 32-acre site adjacent to the East Highline Canal, near the Vail Supply Heading, and above the Nectarine Check to store water from the East Highline Canal and release to the Vail Supply Canal as needed, was constructed and put into operation in 1976. A total of 29,109 acre-feet was diverted to this reservoir and 28,786 acre-feet was released in 1984.

The O.L. "Oscar" Fudge Reservoir was approved for construction on Major Work Authorization No. 79-2. It is a 300-acre-foot regulating reservoir constructed on a 37.5-acre site in portion Tracts 104 and 105, Sections 12 and 13, 14-13, for the storage of water from Central Main Canal above No. 4 Check and released when needed into Central Main Canal below No. 4 Check. Preliminary work was started in 1980 and the reservoir was completed in 1982. A total of 24,937 acre-feet was diverted to this reservoir and 24,726 acre-feet was released in 1984.

The Herman "Red" Sperber Reservoir was approved for construction on Major Work Authorization No. 81-W-1. It is a 470-acre-foot regulating reservoir constructed on a 64.6-acre site in portions Tract 49 and Section 20, 15-15, for the storage of water from the Rositas Canal above the Redwood Heading and released when needed into the Rose and Rubber Canals downstream of Meloland Road. Preliminary work was started in 1981 and was completed in 1983. A total of 24,518 acre-feet was diverted to this reservoir and 23,952 acre-feet was released in 1984.

The 21-point water conservation program which became the official water conservation program for the Imperial Irrigation District effective July 1, 1980, continued in 1984. The two most effective items being the water conservation reservoirs and personnel checking surface field discharge.

The State Water Resources Control Board, in Decision 1600, determined that there are water conservation opportunities in the IID; the District is developing an extensive Water Conservation Plan to be submitted January 31, 1985.

In accordance with Resolution No. 9-84, January 24, 1984, "In the interest of water conservation, improvement of operation and maintenance efficiencies, the control of hydrilla and reduction of right-of-way requirements; the District may undertake the rearrangement and concrete lining of its irrigation lateral canals at no cost to the adjacent landowner."

The District assumed the total cost of concrete lining District laterals in accordance with the above-mentioned resolution except in special circumstances which were described in the resolution.

The first official IID orientation class for new hydrographers and zanjeros was conducted; five hydrographers and seven zanjeros were present. The class was held August 29 & 30, with a trip to Imperial Dam on the 30th.

Neutron Probe

Irrigation Scheduling

Total acres cooperating in the Irrigation Scheduling Program were 13,193. Average irrigation efficiency for all the fields was 86 percent.

Modified Demand Irrigation Trial

This project was started on the Myrtle run which consists of five laterals off the East Highline Canal. If possible, water orders on this run can be terminated up to four hours before or after the regular ending time. An analysis of the irrigation efficiency on the run has not been completed at this time. If properly managed and implemented, tailwater should be reduced on this run.

Irrigation Training

A small irrigation training program was implemented in 1984. Several farmers and irrigators were trained to observe and record the stream advance and tailwater in border strip irrigation. Adjustments were then made during the irrigation to reduce the amount of tailwater. Unit irrigation efficiencies of 90 to 95 percent were achieved during the training period.

Previously unit irrigation efficiencies of 70 to 75 percent had been monitored. During 1984 these fields were monitored and unit efficiencies increased to 85 to 95 percent. Although limited in size this program was very successful.

Hydrilla

The All-American Canal New River & Wistaria Ponds, All-American Canal Westside Main Pond, Fudge & Sheldon Reservoirs had to be lowered several times during the year for inspection and control. The Fudge and Sheldon Reservoirs were also emptied several times during the year.

Grass Carp

Hybrid grass carp were put in Sections 1 & 2 and triploid grass carp were put in Sections 3 and 4 of the Wormwood Lateral 3 Canal in April. The triploid grass carp were easily capable of preventing regrowth of hydrilla in all tests; the hybrid grass carp were unable to keep up with the dense regrowth.

The California Department of Fish & Game Commission ruled in July, 1984, that the IID could introduce the limited number of hybrid grass carp that it possessed into Oscar Fudge Reservoir, and allow the fish to distribute themselves in the lower portion of the Central Main Canal system.

CVWD and IID personnel initiated the preparation of a Draft Environmental Impact Statement in Fall of 1984 for the operational introduction of triploid grass carp for general aquatic weed control and hydrilla eradication.

FARM TILE

The landowners installed a total of 565.88 miles of drain tile in 1984, for a total of 29,537.52 miles installed since 1929.

CONCRETE LINING PROGRAM

There were 43.49 miles of canals concrete lined under the Concrete Lining Program in 1984.

STORMS - 1984

July 6 - Hard showers began at 6:00 a.m. in Yuha Desert. There was approximately 200 cfs runoff to Westside Main Canal through the Yuha Wash.

July 26 - There was a heavy rain in the west desert and Chocolate Mountains causing runoff in the canal system. The East Highline washed out from "N" Check through Niland Extension. Westside Main Canal received approximately 1,800 cfs through Yuha Wash.

WEED CONTROL - MATERIAL

1984

Divisions	Reservoir	Pounds of Chemical			Gallons of Chemical		
		Main Canals	Lateral Canals	Drains	Main Canals	Lateral Canals	Drains
Holtville	-	2 066	12 496	5 191	19 753	-	50
E1 Centro-Calexico	3	1 852	5 525	2 705	10 085	-	250
Imperial	-	2 196	4 492	896	7 564	-	-
Brawley	-	3 426	17 891	12 411	33 728	-	300
Westmorland	-	6 587	14 925	7 421	28 933	-	-
Calipatria	-	2 985	15 497	6 563	25 045	-	-
Total Divisions	3	19 092	70 826	35 187	125 108	-	350
All-American	-	-	6 526	1 866	8 392	-	250
Drainage	-	-	-	27 133	27 133	-	-
Grand Total	3	19 092	77 220	64 186	160 633	-	600

SUMMARY OF ENGINEERING WORK

	<u>1984</u>	<u>1983</u>
<u>Office</u>		
1. No. Special Jobs	160	130
2. No. Delivery Investigations	52	23
3. No. Tile Drain Construction Investigations	84	264
4. No. Drain & Irrigation Investigations	64	90
5. No. Engineering Data Reports	213	198
6. No. of Power Jobs	2	4
7. No. Miscellaneous Jobs	258	201
Total	<u>833</u>	<u>910</u>
<u>8. Laboratory</u>		
(a) No. Silt Analyses	129	135
(b) Miscellaneous	17	29
(c) No. Salinity Analyses	-	-
(d) No. Complete Analyses	129	113
Total Item No. 8	<u>275</u>	<u>277</u>
<u>9. Reproduction</u>		
(a) Blueprints - sq. ft.	141,537	145 991
(b) Photostats - sq. ft.	851	378
<u>10. Microfilm</u>		
(a) No. Drawings Microfilmed	3,627	5 590
Total No. Drawings Microfilmed May 1, 1975, to December 31, 1984	<u>50,323</u>	<u>45 187</u>
<u>Field</u>		
<u>Miles Staked or Surveyed</u>		
1. Delivery Investigations	7.99	9.41
2. Tile Drain Construction	0.63	1.95
3. Tile Drain Investigations	46.06	17.17
4. Drain and Irrig. Investigations	356.75	195.96
5. Power Surveys	20.74	.25
Total	<u>432.17</u>	<u>224.74</u>
6. Test Well Readings ~ Man-days	13.00	-
7. Miscellaneous - Party hours	683.50	1 192.00
8. Inspection - Manhours	4,658.50	8 312.50
9. Power Surveys - Party hours	567.50	-

SUMMARY OF DRAINAGE ENGINEERING WORK

	<u>1984</u>	<u>1983</u>
1. Number Requests for Tile Drainage Invest.	91	97
Total Acreage for Tile Drainage Invest.	6 840	7 240
2. Number Requests for Tile Drainage Outlets Only	83	90
Total Acreage for Tile Drainage Only	5 980	6 400
3. Number Field Checks for Tile Invest. or Designs	113	112
Acreage of Field Checks for Tile Invest. or Designs	6 660	6 800
4. Number Tile Drainage Invest. Pending Acreage of Tile Drainage Invest. Pending	-	-
5. Number Soil and Water Table Invest. Acreage of Soil and Water Table Invest.	9 416	11 560
6. Number Profiles of Tile Drainage Invest. Acreage of Profiles of Tile Drain Invest.	73 5 680	68 5 230
7. Number Field Checks of District Drains to Provide Tile Outlets	123	123
8. Number Field Checks for Depth of Tile Outlets	147	153
9. Number Tile Drainage Designs Completed Acreage in Tile Drainage Designs Completed	66 4 210	62 4 630
10. Number Contacts with Landowner or Others in Field	860	890
11. Number of Contacts with Landowner or Others in Office	4 180	4 455
12. Number Metered Tile Effluents	155	152
13. Number Seepage Invest. of IID Canals	2	7
14. Number Test Wells for Proposed Sumps	1	2
15. Number Special Investigations	64	60
16. Number Field Checks of Tile Machine	156	149

**CONCRETE LINED CANALS, PIPELINE DRAINS,
TILE DRAINS AND DRAINAGE PUMPS**

SUMMARY OF CONCRETE LINED CANALS

Year	Concrete Lined Farm Ditches		Concrete Lining of District Canals		Annual	Cumulative
	Length (Miles)	Cumulative Length (Miles)	For Private Maintenance	For District Maintenance		
1954	48.20	195.90			.80	.80
1955	103.00	298.90	1.15	.50	1.30	104.65
1956	125.60	424.50	4.05	1.66	2.96	301.35
1957	128.90	553.40	4.53	9.73	6.11	432.66
1958	98.40	651.80	4.97	14.70	3.11	569.24
1959	115.70	767.50	7.56	22.26	4.07	675.72
1960	122.10	889.60	4.60	26.86	3.62	803.05
1961	89.50	979.10	4.41	31.27	10.10	933.37
1962	93.30	1,072.40	1.60	32.87	17.67	1,037.38
1963	118.30	1,190.70	5.74	18.61	27.54	1,149.95
1964	110.80	1,301.50	3.53	42.14	50.52	1,301.53
1965	80.70	1,382.20	.76	42.90	54.35	1,466.8
1966	72.30	1,454.50	.75	43.65	68.24	1,602.19
1967	62.90	1,517.40	.40	44.05	60.24	1,743.48
1968	67.50	1,584.90	1.02	45.07	51.68	1,867.02
1969	73.00	1,657.90	.27	45.34	56.11	1,987.22
1970	66.10	1,724.00	.61*	45.95*	38.74*	2,116.60
1971	63.10**	1,787.10**	.93	46.88	35.85	2,222.05*
1972	61.20	1,848.30	1.21	48.09	36.20	2,321.93**
1973	71.50	1,919.80	1.11	49.20	29.94	99.88**
1974	94.50	2,014.39	1.00	50.20	31.17	105.45*
1975	56.80	2,071.10	2.44	52.64	38.39	123.54
1976	68.00	2,139.10	.77	53.41	38.25	120.20
1977	60.30	2,199.40	.30	53.71	34.63	141.29
1978	33.40	2,232.80	-	53.71	19.20	151.73
1979	25.50***	2,258.30***	-	53.71	21.79	177.09
1980	37.40***	2,295.70***	-	53.71	38.75	172.36
1981	43.60***	2,339.30***	-	53.71	27.30	186.18
1982	36.20	2,375.50	-	53.71	18.52	204.70
1983	24.10	2,399.60	-	53.71	23.08	227.78
1984	Not available	-	-	53.71	43.49	243.48
						3,324.57

* Correction 3/22/72

** Correction 1/73

*** Correction 2/17/83

Mileage on District canals shown includes structures

SUMMARY OF CONCRETE LINED CANALS AND FARM DITCHES

Year	Concrete Lined Farm Ditches		Private Maintenance		Concrete Lining of District Canals		District Maintenance		Total Cost to Others	
	Miles	To Date	Miles	To Date	Miles	To Date	Miles	To Date	Miles	To Date
	1954	48.20	195.90	-	.80	.80	.80	-	.80	.80
1955	103.00	298.90	1.15	1.15	.50	1.30	-	-	.50	1.30
1956	125.60	424.50	4.05	5.20	1.66	2.96	-	-	1.66	2.96
1957	128.90	553.40	4.53	9.73	3.15	6.11	-	-	3.15	6.11
1958	98.40	651.80	4.97	14.70	3.11	9.22	-	-	3.11	9.22
1959	115.70	767.50	7.56	22.26	4.07	13.29	-	-	4.07	13.29
1960	122.10	889.60	4.60	26.86	3.62	16.91	-	-	3.62	16.91
1961	89.50	979.10	4.41	31.27	10.10	27.01	-	-	10.10	27.01
1962	93.30	1 072.40	1.60	32.87	17.67	44.68	-	-	17.67	44.68
1963	118.30	1 190.70	5.74	38.61	27.54	72.22	-	-	27.54	72.22
1964	110.80	1 301.50	3.53	42.14	50.52	122.74	-	-	50.52	122.74
1965	80.70	1 382.20	.76	42.90	52.83	175.57	-	-	54.35	177.09
1966	72.30	1 454.50	.75	43.65	67.24	242.81	1.52	1.52	2.52	245.33
1967	62.90	1 517.40	.40	44.05	60.24	303.05	1.00	1.00	2.52	305.57
1968	67.50	1 584.90	1.02	45.07	47.17	350.22	-	-	7.03	51.68
1969	73.00	1 657.90	.27	45.34	55.10	405.32	4.51	4.51	357.25	357.25
1970	66.10	1 724.00	.61*	45.95*	38.74*	444.06*	1.01	1.01	8.04	56.11
1971	63.10**	1 787.10	.93	46.88	35.01	479.07	.84	.84	8.04	38.74*
1972	61.20	1 848.30	1.21	48.09	36.20	515.27	-	-	8.88	35.85
1973	71.50	1 919.80	1.11	49.20	29.94	545.21	-	-	8.88	36.20
1974	94.50	2 014.30	1.00	50.20	31.17	576.38	-	-	8.88	524.15
1975	56.80	2 071.10	2.44	52.64	38.39	614.77	-	-	8.88	487.95
1976	68.00	2 139.10	.77	53.41	38.25	653.02	-	-	8.88	623.65
1977	60.30	2 199.40	.30	53.71	34.63	687.65	-	-	8.88	661.90
1978	33.40	2 232.80	-	53.71	19.20	706.85	-	-	8.88	696.53
1979	25.50***	2 258.30***	-	53.71	21.79	728.64	-	-	8.88	715.73
1980	37.40***	2 295.70***	-	53.71	21.36	750.00	-	-	8.88	737.52
1981	43.60***	2 339.30***	-	53.71	27.30	777.30	-	-	8.88	758.88
1982	36.20	2 375.50	-	53.71	18.52	795.82	-	-	8.88	786.18
1983	24.10	2 399.60	-	53.71	23.08	818.90	-	-	8.88	804.70
1984*	Not available	-	53.71	43.49	863.39	-	-	-	8.88	827.78
									8.88	870.27
									43.49	

* Correction 3/22/72

** Correction 1/73

*** Correction 2/17/83

Beginning 1-1-84 - Concrete lining of District canals - total IID cost
Mileage on District canals shown includes structures

PIPELINE DRAIN INSTALLATIONS

(District O & M)

<u>Year</u>	<u>Miles</u>	<u>Cumulative Length a/</u>
1962	1.38	22.51
1963	9.74	32.25
1964	5.38	37.63
1965	4.92	42.55
1966	13.64	56.19
1967	7.11	63.30
1968	6.24	69.54
1969	7.37	76.91
1970	3.69	80.06*
1971	2.16	82.22
1972	5.54**	87.76**
1973	1.83	89.59
1974	5.31	94.90
1975	6.47***	101.37***
1976	1.11	102.48
1977	1.36	103.84
1978	.90	104.74
1979	1.12	105.86
1980	2.13	107.99
1981	1.96	109.95
1982	.49	110.44
1983	.79	111.23
1984	.79	112.02

*0.54 of a mile abandoned

**0.48 of a mile is in the total miles, but no additional miles in records as parallel drain

***0.27 of a mile is in the total miles, but no additional miles in records as parallel drain

a/Not actual current pipeline total due to corrections and abandonments - shows actual installation per year

TILE INSTALLED IN IMPERIAL IRRIGATION DISTRICT

<u>Year</u>	<u>Miles of Tile Installed</u>	<u>Cumulative Total Miles Tile Installed</u>	<u>No. Acres Tiled</u>	<u>Cumulative Total No. Acres Tiled</u>
1929 to 1939, Inclusive				
Cumulative Total Miles Installed ~ 332.77				
Total Acres Prior to 1940 --- 12,200				
1940	66.84	399.61	4 040	16 240
1941	46.08	445.69	2 880	19 120
1942	37.15	482.84	2 040	21 160
1943	53.24	536.08	3 960	25 120
1944	60.00	596.08	1 880	27 000
1945	55.00	651.08	3 240	30 240
1946	133.25	784.33	5 480	35 720
1947	325.00	1 109.33	17 920	53 640
1948	393.80	1 503.13	17 220	70 860
1949	455.62	1 958.75	21 670	92 530
1950	458.00	2 416.75	22 610	115 140
1951	603.10	3 019.85	22 665	137 805
1952	709.54	3 729.39	23 345	161 150
1953	512.19	4 241.58	16 000	177 150
1954	491.12	4 732.70	14 960	192 110
1955	526.92	5 259.62	15 160	207 270
1956	519.36	5 778.98	13 290	220 560
1957	560.97	6 339.95	12 200	232 760
1958	490.88	6 830.83	10 690	243 450
1959	546.54	7 377.37	9 550	253 000
1960	794.05	8 171.42	15 713	268 713
1961	857.51	9 028.93	17 921	286 634
1962	611.01	9 639.94	11 485	298 119
1963	766.02	10 405.96	10 129	308 248
1964	993.97	11 399.93	12 707	320 955
1965	734.52	12 134.45	7 958	328 913
1966	527.38	12 661.83	6 634	335 547
1967	634.00	13 295.83	6 419	341 966
1968	754.33	14 050.16	6 046	348 012
1969	808.64	14 858.80	6 010	354 022
1970	1 036.61	15 895.41	8 230	362 252
1971	919.34	16 814.75	7 552	369 804
1972	1 019.40	17 834.15	7 311	377 115
1973	1 154.35	18 988.50	8 031	385 146
1974	1 191.96*	20 180.46*	3 734	388 880
1975	1 223.22	21 403.68	6 258	395 138
1976	1 530.67	22 934.35	7 941	403 079
1977	822.31	23 756.66	3 441	406 520
1978	958.32	24 714.98	5 719	412 239
1979	1 234.11	25 949.09	6 636	418 875
1980	1 061.32	27 010.41	3 873	422 748
1981	865.80	27 876.21	4 839	427 587
1982	631.54	28 507.76	1 950	429 537
1983	463.88	28 971.64	1 687	431 224
1984	565.88	29 537.52	1 633	432 857

*Correction 6/1/75

TILE DRAINAGE SUMPS
Breakdown of Cost of D&M
(Dollars)

Standard Sumps

No. of Sumps	Annual Cost for All Sumps					Average Annual Cost Per Sump					Total Cost Per Sump			
	Total No.	Weighted Average	Labor	Material	Equip.	Total Maint.	Power	Total Cost	Labor	Material	Equip.	Maint.	Power	
1957	85	82	\$ 3,805	\$ 1,586	\$ 1,499	\$ 6,890	\$ 6,448	\$13,338	\$ 47	\$ 19	\$ 18	\$ 84	\$ 79	\$ 163
1958	96	90	5,210	2,408	1,991	9,609	6,846	16,455	58	27	22	107	76	183
1959	100	98	4,973	2,242	2,489	9,704	8,691	18,395	51	23	25	99	89	188
1960	126	112	4,909	1,187	1,476	7,572	9,188	16,760	44	11	13	68	82	150
1961	148	138	6,095	1,812	2,346	10,253	12,854	23,107	44	13	17	74	93	167
1962	170	156	6,728	3,243	1,623	11,594	15,971	27,565	43	21	10	74	102	176
1963	191	179	8,102	6,184	2,131	16,417	21,272	37,689	45	35	12	92	119	211
1964	221	205	9,451	6,728	2,320	18,499	17,720	36,219	46	35	11	90	87	177
1965	241	231	13,223	11,290	2,958	27,471	16,349	43,820	57	49	13	119	71	190
1966	263	249	14,852	13,449	3,153	31,454	15,569	47,023	59	54	13	126	63	189
1967	275	267	16,708	12,588	4,279	33,575	15,391	48,966	63	47	16	126	58	184
1968	306	287	15,222	10,531	3,554	29,307	18,188	47,495	53	37	12	102	63	165
1969	328	316	22,051	12,893	4,976	39,920	19,178	59,098	70	41	15	126	61	187
1970	356	342	25,868	17,147	6,323	49,338	20,976	70,314	76	50	18	144	61	205
1971	369	360	24,462	30,767	5,667	60,896	22,123	83,019	68	85	16	169	62	231
1972	390	378	29,958	28,352	7,072	65,382	23,485	88,867	79	75	19	173	62	235
1973	405	394	25,016	6,374	5,477	36,867	25,820	62,687	63	16	14	93	66	159
1974	419	412	32,387	15,457	6,273	54,117	34,692	88,809	79	37	15	131	84	215
1975	432	424	36,129	15,895	7,173	59,197	43,936	103,133	85	37	17	139	104	243
1976	434	432	39,895	18,890	8,187	66,972	48,485	115,457	92	44	19	155	112	267
1977	438	436	47,634	30,443	8,694	86,771	43,741	130,512	109	70	20	199	100	299
1978	442	439	55,963	24,382	8,720	89,065	55,304	144,369	127	56	20	203	126	329
1979	452	447	74,408	27,249	9,786	111,443	73,905	185,348	166	61	22	249	165	414
1980	464	457	78,078	43,794	10,413	132,285	88,721	221,006	170	96	23	289	194	483
1981	473	467	105,054	56,371	15,887	175,312	89,202	264,514	225	121	30	375	191	566
1982	473	473	127,865	41,154	15,499	184,518	115,789	300,307	270	87	33	390	245	635
1983	475	474	119,562	25,824	15,872	161,258	130,748	292,006	252	54	34	340	276	616
1984	477	475	110,630	25,605	15,100	151,335	120,528	271,863	233	54	32	319	254	572

TILE DRAINAGE SUMPS
Breakdown of Cost of Dam
(Dollars)

Salton Sea Sumps

No. of Sumps	Annual Cost for All Sumps						Average Annual Cost Per Sump						Total Cost Per Sump
	Total No.	Weighted Average	Labor	Material	Power	Total Cost	Labor	Material	Equip.	Total Maint.	Maint.	Power	
1957	15	14	\$ 201	\$ 119	\$.23	\$ 363	\$ 1,796	\$ 2,139	\$ 14	\$ 9	\$ 2	\$ 25	\$ 128
1958	19	18	514	162	.71	747	2,232	2,979	29	9	4	42	124
1959	22	20	897	211	.518	1,626	2,629	4,255	45	10	26	81	132
1960	22	22	706	220	.429	1,355	2,332	3,687	32	10	20	62	106
1961	25	24	829	327	.598	1,754	3,049	4,803	34	14	25	73	127
1962	25	25	752	3,063	.530	4,345	3,386	7,731	30	123	21	174	135
1963	27	26	1,381	3,509	.917	5,807	4,487	10,294	53	135	35	223	173
1964	29	29	1,026	1,101	.941	3,068	3,908	6,976	35	38	33	106	135
1965	29	29	1,102	951	.887	2,940	3,179	6,119	38	53	30	101	110
1966	30	30	1,361	2,880	.995	5,236	2,883	8,119	45	96	33	174	96
1967	30	30	991	3,034	.823	4,848	2,644	7,492	35	102	27	162	83
1968	30	30	1,407	5,740	1,079	8,226	2,958	11,184	47	191	36	274	99
1969	30	30	1,815	4,759	1,529	8,103	3,325	11,428	60	159	51	270	111
1970	30	30	2,008	2,030	.873	4,911	3,243	8,154	67	68	29	164	108
1971	30	30	3,488	10,660	1,529	15,677	3,551	19,228	116	356	51	523	118
1972	30	30	2,787	7,611	1,209	11,607	3,702	15,309	93	254	40	387	123
1973	30	30	1,945	739	.943	3,627	3,941	7,568	65	25	31	121	131
1974	30	30	1,822	195	1,541	3,558	5,087	8,645	61	6	51	118	170
1975	30	30	2,264	576	2,069	4,909	6,462	11,371	76	19	69	164	215
1976	30	30	2,728	860	2,664	6,252	6,829	13,081	91	28	89	208	228
1977	30	30	2,556	1,141	2,944	6,641	8,476	15,117	85	38	98	221	283
1978	30	30	3,298	3,341	2,748	9,387	10,542	19,929	110	111	92	313	351
1979	30	30	3,409	3,141	1,026	7,576	13,008	20,584	114	105	34	253	433
1980	30	30	7,863	7,797	2,444	18,104	21,267	39,371	262	260	81	603	709
1981	30	30	8,180	6,122	1,524	15,826	15,063	30,889	273	204	51	528	502
1982	30	30	9,978	8,879	2,076	20,933	19,315	40,248	333	296	69	698	644
1983	30	30	21,319	9,186	3,699	34,204	27,034	61,238	711	306	123	1,140	901
1984	30	30	20,685	7,420	1,939	30,044	20,722	50,766	690	247	65	1,002	691

DRAIN SUMP PUMPS
JANUARY 1, 1985

<u>Name</u>	<u>Location</u>	<u>Discharge Into</u>	<u>Type & Depth of Sump</u>	<u>No. and HP Pumps</u>	<u>Power Account No.</u>	<u>Center L. of Discharge to Top of Sump</u>
<u>Pumps Installed, Operated and Maintained by IID, (In Connection with IID Facilities)</u>						
DP 1 Evergreen Canal Sump	(Removed 1980)					
DP 2 Evergreen Canal Sump	(Removed 1967)					
DP 3 A-A Drain No. 2 Sump (E.H.L. Pump A)	NW Cor. Lot 2, Sec. 1, 17-16	East Highline Canal	11-1951	1 @ 40***	15-10-0546-02	
DP 4 A-A Dr. 1A & 1B, No. Side	NE NW $\frac{1}{2}$ Sec. 1, 17-17	All-American Canal	8-1951	1 @ 60***	15-10-1274-08	
DP 5 A-A Dr. No. 1C, Sc. Side	SE $\frac{1}{2}$ NW $\frac{1}{2}$ Sec. 1, 17-17	All-American Canal	10-1955	1 @ 10**	15-10-1272-00	
DP 6 A-A Dr. No. 4A, So. Side	Lot 3 Sec. 16, 17-16	All-American Canal	7-27-60	Conc. 14'	1 @ 25**	
DP 7 (Removed 1975)				1 @ 3*	15-10-0427-06	
DP 8 Rose Drain Outlet	Ctr. N Line Tr. 49, 14-14	Rose Outlet Drain	1925	2 @ 40***	01-40-2502-00	
DP 9! Mesa Drain No. 8	NW Cor. N $\frac{1}{2}$ of SE $\frac{1}{4}$, Sec. 25, 16-16	Mesa Dr. 8 (Pipeline)	9-7-54	Conc. 12'	1 @ 3*	06-10-0536-05
DP 10 IID Headquarters Yard	NE Cor. Lot 4, Townsite of Imperial, 15-14	Dolson Drain No. 2	12-11-61	Conc. 14'	1 @ 1 $\frac{1}{2}$ *	09-30-0212-09
DP 11 A-A Canal Northside	SW Cor. Tr. 47, 17-16	All-American Canal	4-18-63	Conc. 20'	1 @ 3*	15-10-0428-05
DP 12 A-A Canal Northside	NW Cor. Lot 5, Sec. 16, 17-16	All-American Canal	2-3-65	Conc. 16'	1 @ 3*	15-10-0429-04
DP 13 R. S. Dhillon - Pumps Owned, Operated, and Power Bills Paid by Landowners - Mechanical Maintenance by IID	(Removed 1970)					05-20-1175-08
DP 14 Marth Ranch	(Removed 1970)					
DP 15 Removed December, 1977						
DP 16 Bridenbaugh - S-415 (1974)						
DP 17!! DP 17 Pipeline Drain	Ctr. N Line SW $\frac{1}{4}$, Sec. 11, 15-16	East Highline Canal	5-15-67	Conc. 22'	1 @ 10**	11-11-1442-08
DP 18!! DP 18 Pipeline Drain	Ctr. Tr. 99, 16-16	East Highline Canal	9-16-68	Conc. 20'	1 @ 10**	11-11-1811-01
DP 19!! DP 19 Pipeline Drain	NW Cor. Tr. 99, 16-16	East Highline Canal	9-9-68	Conc. 20"	1 @ 10**	11-11-1808-06
Over Top						

[!]In Connection with Providing Outlet for Waste Water
^{!!}In Connection with Water Recovery Study

*220 - Single-Phase
**220 - 3 Phase
†***440 - 3 Phase

<u>Name</u>	<u>Location</u>	<u>Discharge Into</u>	<u>Date Installed</u>	<u>Type & Depth of Sump</u>	<u>No. and HP Pumps</u>	<u>Power Account No.</u>	<u>Center L. of Discharge to Top of Sump</u>
<u>Pumps Installed, Operated and Maintained by IID (In Connection with IID Facilities)</u>							
DP 20!! DP 20 Pipeline Drain	Ctr. NW $\frac{1}{2}$ Sec. 26, 14-16	East Highline Canal	9-26-68	Conc. 20'	1 @ 5**	11-11-1025-03	Over Top
DP 21!! DP 21 Pipeline Drain	NE Cor. Lot 7, Sec. 12, 16-16	East Highline Canal	11-12-68	Conc. 20'	1 @ 10**	06-10-0760-02	Over Top
DP 22!! DP 22 Pipeline Drain	NE Cor. Lot 2, Sec. 12, 16-16	East Highline Canal	11-4-68	Conc. 20'	1 @ 10**	06-10-0763-09	Over Top
DP 23!! DP 23 Pipeline Drain	NE $\frac{1}{2}$ Sec. 28, 13-16	East Highline Canal	3-30-70	Conc. 20'	1 @ 10**	06-40-0209-01	Over Top
DP 24!! DP 24 Pipeline Drain	NW $\frac{1}{2}$ Sec. 2, 14-16	East Highline Canal	10-6-71	Conc. 20'	1 @ 10**	11-11-0788-02	Over Top
DP 25!! DP 25 Pipeline Drain	SW $\frac{1}{2}$ Sec. 2, 14-16	East Highline Canal	1-11-72	Conc. 20'	1 @ 10**	11-11-0786-04	Over Top
DP 26!! DP 26 Pipeline Drain	N $\frac{1}{2}$ Tr. 59, 14-16	East Highline Canal	11-24-72	Conc. 20'	2 @ 10**	11-11-0798-00	Over Top
DP 27!! DP 27 Pipeline Drain	SW $\frac{1}{2}$ Sec. 36, 15-16	East Highline Canal	12-13-72	Conc. 20'	2 @ 10**	11-11-1807-07	Over Top
DP 28!! DP 28 Pipeline Drain	Near Ctr. S Line, SW $\frac{1}{2}$ Sec. 23, 14-16	East Highline Canal	1-28-74	Conc. 20'	1 @ 15**	11-11-0855-00	Over Top
					1 @ 10**		

* In Connection with Providing Outlet for Waste Water
!! In Connection with Water Recovery Study

*220 - Single-Phase
**220 - 3 Phase
***440 - 3 Phase

DRAIN SUMP PUMPS - January 1, 1985 (Continued)

<u>Name</u>	<u>Location</u>	<u>Discharge Into</u>	<u>Date Installed</u>	<u>Type & Depth of Sump</u>	<u>No. and HP Pumps</u>	<u>Power Account No.</u>	<u>Center L. of Discharge to Top of Sump</u>
<u>Pumps Owned, Operated, and Power Bills Paid by Landowners - Mechanical Maintenance by IID</u>							
R. S. Dhillon (DP No. 13)	NE Cor. Tr. 56, 16-13	Dahlia Canal, Gate 12	1941	Tim. 14'	1 @ 1½	05-20-1175-08	

DRAIN SUMP PUMPS - January 1, 1985 (Continued)

<u>S.</u>	<u>No.</u>	<u>Name</u>	<u>Location</u>	<u>Discharge Into</u>	<u>Date Installed</u>	<u>Type & Depth of Sump</u>	<u>No. and HP Pumps</u>	<u>Power Account No.</u>	<u>Center L. of Discharge to Top of Sump</u>
<u>Pumps Installed, Operated, and Maintained by IID (In Connection with Providing Outlet for Waste Water)</u>									
Mesa Drain No. 8 - (DP No. 9)	NW Cor. N $\frac{1}{2}$ of SE $\frac{1}{4}$ Sec. 25, 16-16	Mesa Drain No. 8	Mesa Drain No. 8 Pipeline	9-7-54	Conc. 12'	1 @ 3 #	06-10-0536-05	36"	

DRAIN SUMP PUMPS
JANUARY 1, 1985

	<u>Name</u>	<u>Location</u>	<u>Discharge Into</u>	<u>Date Installed</u>	<u>Type & Depth of Sump</u>	<u>No. and HP Pumps</u>	<u>Power Account No.</u>
<u>Surface Drainage Sump Pumps Installed, Operated and Maintained by IID, Major Work Authorization 78-1 (Board Action 6-13-78)</u>							
WP-1	Elmore	Approx. N. line NE 1/4 Sec. 11, 12-11	Salton Sea	3-25-80	10'	1 @ 5 HP	20-50-0446-07
WP-2	Elmore	NW Cor. SE 1/4 Sec. 11, 12-11	Salton Sea	3-25-80	10'	1 @ 5 HP	20-50-0431-04
WP-3	Elmore	NW Cor. SE 1/4 Sec. 13, 12-11	Salton Sea	4-1-80	10'	1 @ 5 HP	20-50-0412-07
WP-4	Elmore	NE Cor. NE 1/4 Sec. 24, 12-11	Trifolium 20	4-1-80	10'	1 @ 5 HP	20-50-0403-08
WP-5	Reese	NE Cor. S 1/2 SW 1/4 Sec. 19, 12-12	Trifolium 19	3-14-80	10'	1 @ 5 HP	20-50-0214-07
WP-6	I.I.D.	Ctr. W line SW 1/4 Sec. 24, 12-12	Trifolium 12	8-1-80	10'	1 @ 5 HP	07-50-2065-00
WP-7	Griset	NW Cor. E. 1/2 NW 1/4 Sec. 24, 12-12	Salton Sea	5-7-80	10'	1 @ 5 HP	17-60-0677-00
WP-8	Elmore	NW Cor. Lot 3 Sec. 18, 12-13	Vail Cut-Off	5-7-80	10'	1 @ 5 HP	17-60-0702-09
WP-9	I.I.D.	NW Cor. SW 1/4 Sec. 7, 12-13	Salton Sea	5-8-80	10'	1 @ 5 HP	17-60-0707-04
WP-10	Elmore	Approx. Ctr. Sec. 7, 12-13	Salton Sea	8-1-80	10'	1 @ 5 HP	17-60-0733-02
WP-11	Elmore	NW Cor. SW 1/4 Sec. 5, 12-13	Vail 6 Dr.				
WP-12	I.I.D.	NW Cor. Lot 6 Sec. 5, 12-13	Salton Sea	7-13-79 3-18-80	10'	2 @ 5 HP	17-60-0742-01

Surface Drainage Sumps - January 1, 1985 (Continued)

	<u>Name</u>	<u>Location</u>	<u>Discharges Into</u>	<u>Date Installed</u>	<u>Type & Depth of Sump</u>	<u>No. and HP Pumps</u>	<u>Power Account No.</u>
WP-13	Vonderahe	NW Cor. Lot 4 Sec. 5, 12-13	Vail 5-A Drain	3-17-80	10'	1 @ 5 HP	17-60-0762-06
WP-14	Dearborn	NW Cor. SW 1/4 Sec. 33, 11-13	Vail 5 Drain	7-10-79	10'	1 @ 5 HP	17-60-1171-09
WP-15	Del Ranch	NW Cor. SE 1/4 Sec. 33, 11-13	Vail 4-A Drain	3-19-80	10'	1 @ 5 HP	17-60-1166-06
WP-16	I.I.D.	Ctr. N Line NW 1/4 Sec. 33, 11-13	Salton Sea	4-10-80	10'	1 @ 5 HP	17-60-0772-04
WP-17	U.S.A.	NW Cor. NE 1/4 Sec. 33, 11-13	Pumice Drain	4-17-80	10'	1 @ 5 HP	17-60-0771-05
WP-18	Sanborn	NW Cor. NW 1/4 Sec. 34, 11-13	Pumice Drain	4-17-80	10'	1 @ 5 HP	17-60-0786-08
WP-19	Baretta	NW Cor. NE 1/4 Sec. 34, 11-13	Pumice Drain	5-6-80	10'	1 @ 5 HP	17-60-1155-09
WP-20	I.I.D.	Ctr. W Line SE 1/4 Sec. 28, 11-13	Salton Sea	12-30-80	10'	1 @ 5 HP	17-60-0767-01
WP-21	Elmore	NE Cor. SW 1/4 Sec. 27, 11-13	Vail Lateral 3-A Spill	5-6-80	10'	1 @ 5 HP	17-60-0796-06
WP-22	Smith	NW Cor. SE 1/4 Sec. 27, 11-13	Vail 3-A Drain	7-5-79	10'	1 @ 5 HP	17-60-0797-05
WP-23	Smith	NW Cor. SW 1/4 Sec. 26, 11-13	Vail Lateral 3	7-18-84	10'	1 @ 5 HP	17-60-0815-03